# GREAT LAKES CONNECTING CHANNELS

[No. 84-9]

# HEARINGS

BEFORE THE

## SUBCOMMITTEE ON RIVERS AND HARBORS

OF THE

## COMMITTEE ON PUBLIC WORKS
## HOUSE OF REPRESENTATIVES

EIGHTY-FOURTH CONGRESS

FIRST SESSION

ON

**H. R. 158, H. R. 462, H. R. 660, H. R. 2182, H. R. 2552, H. R. 2589, H. R. 4110, and H. R. 4629**

TO AUTHORIZE THE MODIFICATION OF THE EXISTING PROJECTS FOR THE GREAT LAKES CONNECTING CHANNELS ABOVE LAKE ERIE

JUNE 29 AND 30, 1955

Printed for the use of the Committee on Public Works

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# GREAT LAKES CONNECTING CHANNELS

**WEDNESDAY, JUNE 29, 1955**

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON RIVERS AND HARBORS OF THE
COMMITTEE ON PUBLIC WORKS,
*Washington, D. C.*

The subcommittee met, pursuant to call, at 11:45 a. m., in room 1302, New House Office Building, Hon. John A. Blatnik (chairman of the subcommittee) presiding.

Mr. BLATNIK. The meeting of the Rivers and Harbors Subcommittee of the Public Works Committee of the House of Representatives will come to order. We commence hearings this morning on a series of bills providing for channel improvement of the Great Lakes channels. We have eight measures before us. I am informed all are identical, or at least quite similar. They have been introduced by Mr. O'Konski, Mr. Machrowicz, Mr. Dondero, Mr. Reuss, the chairman of the subcommittee Mr. Blatnik, Mr. Ford, Mr. Vanik, and Mr. Ashley. All of these shall be listed and be discussed. But for the purposes of simplification and parliamentary advantage, when and if amendments come up the Chair announces bills H. R. 2552 by the chairman of the subcommittee, and H. R. 660 by the distinguished ranking minority member of the full committee, Mr. Dondero, which are identical bills, will for technical purposes be heard by the committee.

Without objection, at this point in the record the bills will be inserted.

(The bills are as follows:)

[H. R. 158, 84th Cong., 1st sess.]

A BILL To authorize the modification of the existing projects for the Great Lakes connecting channels above Lake Erie

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That the projects for improvement of the Great Lakes connecting channels above Lake Erie are hereby modified to provide controlling depths of not less than twenty-seven feet, the work to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with plans to be approved by the Chief of Engineers.

SEC. 2. There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

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[H. R. 462, 84th Cong., 1st sess.]

A BILL To authorize the modification of the existing project for the Great Lakes connecting channels above Lake Erie

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That the project for improvement of the Great Lakes connecting channels above Lake Erie is hereby modified to provide con-

trolling depths of not less than twenty-seven feet, the work to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with plans to be approved by the Chief of Engineers.

SEC. 2. There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

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[H. R. 660, 84th Cong., 1st sess.]

A BILL To authorize the modification of the existing project for the Great Lakes connecting channel above Lake Erie

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the project for improvement of the Great Lakes connecting channels above Lake Erie is hereby modified to provide controlling depths of not less than twenty-seven feet, the work to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with plans to be approved by the Chief of Engineers.

SEC. 2. There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

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[H. R. 2182, 84th Cong., 1st sess.]

A BILL To authorize the modification of the existing projects for the Great Lakes connecting channels above Lake Erie

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the projects for improvement of the Great Lakes connecting channels above Lake Erie are hereby modified to provide controlling depths of not less than twenty-seven feet, the work to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with plans to be approved by the Chief of Engineers.

SEC. 2. There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

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[H. R. 2552, 84th Cong., 1st sess.]

A BILL To authorize the modification of the existing project for the Great Lakes connecting channels above Lake Erie

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the project for improvement of the Great Lakes connecting channels above Lake Erie is hereby modified to provide controling depths of not less than twenty-seven feet, the work to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with plans to be approved by the Chief of Engineers.

SEC. 2. There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

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[H. R. 2589, 84th Cong., 1st sess.]

A BILL To authorize the modification of the existing project for the Great Lakes connecting channels above Lake Erie

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the project for improvement of the Great Lakes connecting channels above Lake Erie is hereby modified to provide controlling depths of not less than twenty-seven feet, the work to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with plans to be approved by the Chief of Engineers.

[H. R. 4110, 84th Cong., 1st sess.]

A BILL To authorize the modification of existing project for the Great Lakes connecting channels above Lake Erie

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That the project for improvement of the Great Lakes connecting channels above Lake Erie is hereby modified to provide controlling depths of not less than 27 feet, the work to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with plans to be approved by the Chief of Engineers.

SEC. 2. There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

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[H. R. 4629, 84th Cong., 1st sess.

A BILL To authorize the modification of the existing project for the Great Lakes connecting channels above Lake Erie

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That the project for improvement of the Great Lakes connecting channels above Lake Erie is hereby modified to provide controlling depths of not less than twenty-seven feet, the work to be prosecuted under the direction of the Secretary of the Army and the supervision of the Chief of Engineers in accordance with plans to be approved by the Chief of Engineers.

SEC. 2. There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

Mr. BLATNIK. Briefly, the proposals call for further deepening of the connecting channels of the Great Lakes. These channels have been historically improved by approval of the Federal Government, since about 1890. Rapid development of modern, safe, fast, large cargo carriers within the past 10 years have made it imperative that further channel improvements be made. These are justified to keep up with the growth of commerce on the Great Lakes. Most of the commerce is between American ports. A very small percentage is between Canadian, or Canadian to American ports, and only about 1 percent of it is ocean commerce.

Therefore, we will be dealing largely with the economic aspects of domestic shipping in this country.

I have just one further brief comment. Over one-quarter of the total waterborne commerce of America is carried on this great inland body of water known as the Great Lakes. Coming from Minnesota, we there are most concerned with the St. Marys channels and locks which open Lake Superior and the western end of the lake to the rest of the Great Lakes and the St. Lawrence.

In the past 100 years the St. Marys locks at Sault Ste. Marie have carried about half of all the Great Lakes commerce; a total which is equal to or greater than the combined tonnage shipped through the Suez and Panama Canals each year in a period of 12 months, is shipped through the Soo locks in a period of 8 months, from April to November, inclusive.

In the past 10 years we find that since 1945, which is the postwar period, the tonnage which went through the Soo locks was one-quarter of the total tonnage which went through those locks since the very beginning, 100 years ago, in 1855.

Now I will call on Col. Arthur C. Nauman, the district engineer for the Detroit district, who has spent many years on Great Lakes navigation and on these projects, and who will give us the basic testi-

mony, the geographical location of the works as well as their nature and extent and amount of commerce, with the cost estimates involved.

Mr. DONDERO. Before he begins, Mr. Chairman, I would like to say one thing. That is, with the passage of time it is interesting to see how public opinion can change when we all remember that it was Henry Clay who inquired whether or not the locks at the Soo were on the moon, or were so far removed from civilization that only the Indians had ever heard about them. Here we are talking, as the chairman already said, about locks which carry nearly 25 percent of the waterborne commerce of the United States.

Mr. BLATNIK. Thank you very much, Mr. Dondero. Now, Colonel Nauman.

## STATEMENT OF ARTHUR C. NAUMAN, COLONEL, UNITED STATES ARMY, DISTRICT ENGINEER, DETROIT DISTRICT

Colonel NAUMAN. Mr. Chairman, the report on the Great Lakes connecting channels was submitted in accordance with resolutions of the House Public Works Committee dated December 27, 1951, and June 24, 1953, and a resolution of the Senate Public Works Committee dated March 25, 1953.

The connecting channels of the Great Lakes include the waterways between Lakes Superior and Huron, Lake Huron and Lake Michigan, and Lake Huron and Lake Erie.

The connecting channels are made up of the St. Marys River, which is 63 miles long; the St. Clair River, Lake St. Clair, and the Detroit River, with a combined length of 87 miles.

Subsequent to the construction of the channel through Lake George on the St. Marys, which was 12 feet deep and was built in the period of 1856 to 1859, a succession of improvements has been made of the connecting channels up to the provision of the existing project depths. The present minimum project depths are 25 feet in downbound channels and 21 feet in upbound channels; and in two-way channels the project depth is in every case 25 feet. All of these depths are with the lakes at their low-water datum.

Except for the St. Marys River these channels are navigated without locks. At Sault Ste. Marie there are 4 parallel locks with a lift of 21.7 feet, which have been built by the United States Government. On the Canadian side of the river there has been built a single lock by the Canadian Government.

The total cost of the connecting channels project to date is $97,570,263 for new work and $32,507,537 for maintenance.

The principal items of waterborne commerce carried on the Great Lakes are iron ore, coal, limestone, grain, and petroleum products.

The annual tonnages of these commodities which were carried over a recent 5-year period are as follows:

Iron ore, 81 million tons; coal, 52 million tons; stone, 22 million tons; grain, 5,800,000 tons; and petroleum 9 million tons. Generally these commodities——

Mr. DONDERO. Colonel, will you repeat the tonnage of ore?

Colonel NAUMAN. Yes, sir; 81 million tons. The movement of these commodities is from the upper lakes to the lower lakes for iron ore, stone, and grain. Petroleum products move from the lower lakes generally from the port of Toledo and from the Chicago area in

both directions. Coal is normally moved upbound from Toledo and some from the Chicago area through the connecting channels to Detroit and to the upper lake ports on Lake Superior and at the head of Lake Michigan.

Mr. BURNSIDE. How many million tons of coal did you say moved through there?

Colonel NAUMAN. Fifty-two million tons. The existing project depths on the Great Lakes connecting channels are inadequate to permit many vessels in the Great Lakes fleet to load to their maximum depth, except at extremely high lake stages. This situation became more pronounced in recent years because of the marked trend of replacing older vessels with larger and deeper draft vessels.

Of some 286 vessels of American registry now in the Great Lakes fleet, it is estimated over two-thirds of these exceed 40 years of age. These vessels are dependent upon for over one-half of the American movement of iron ore. Because of their obsolescence, maintenance and operating costs of these vessels are comparatively high.

Newer vessels in the lake fleet range from 22.4 feet to 26.9 feet in draft. The lengths are up to 714 feet and 75 feet in width. Difficulties are encountered in navigating the connecting channels because of limited depths, bends and turns in the channels, and in some reaches some rather swift currents.

Fogs are encountered at times, which makes it necessary for vessels to anchor until the fogs have lifted. A bad cross-current at the Amherstburg Channel at the lower end of Ballard's Reef makes it difficult for vessels to pass this point at low speed.

The southeast bend in the St. Clair River is difficult to navigate as a sharp reverse curve is combined with a rather narrow channel for two-way traffic through the bend.

A public hearing was held in Detroit on November 17, 1953, in order to determine the improvements desired by shipping interests and obtain the expression of views of other interested parties.

The plan of improvement recommended by the Chief of Engineers provides for a minimum channel depth of 27 feet below low-water datum with a resulting safe draft for vessels of 25½ feet. Maximum channel depths in this plan will be 30 feet. These recommended depths vary because of increased allowance for vessel clearance in rock channels over channels in soft material.

Mr. DONDERO. Colonel Nauman, I understood you to say because of the length, the width and the draft of the new boats or vessels being built on the Great Lakes that the connecting channels would have to be deepened even though the St. Lawrence River project had never been adopted. Is that right?

Colonel NAUMAN. That is correct, Mr. Dondero. This study was based entirely on interlake commerce.

Mr. SCUDDER. Could I ask a question there, Mr. Chairman?

Mr. BLATNIK. Mr. Scudder is recognized.

Mr. SCUDDER. I have to leave shortly. I only wish I could stay throughout the hearing. But about 3 years ago when we were out looking over the Mesabi Range they advised us then that when the St. Lawrence seaway was under consideration that the deposits of ore would be played out in about 10 or 12 years. Have you projected that date to when they need these large ships?

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Colonel NAUMAN. Yes, sir. In using as the basis for the economic study, the President's Materials Policy Commission report, it was developed that there will be an average annual tonnage of iron ore carried through the life of the project, which we estimate at from 50 to 60 years—50 years from the date of the start of construction and we say 60 years from now—of some 82 million tons per year.

Mr. BLATNIK. If I may add something further in answer to the gentleman's question, the high-grade ore you are referring to is primarily the open-pit, high-grade ore, which is rapidly diminishing. Increasing is the production of beneficiated ores, that is, the improvement of the low-grade ores. Year by year there is an increase in tonnage from that source.

The new and strikingly more significant source is the development of taconite. Starting off with zero they will begin full-scale commercial production this year from plants that are already constructed, and have a capitalization of over a half a billion dollars. Those are increasing and by 1962 there shall be over $1 billion invested in that new type of mining called taconite. You saw one of the pilot plants when you were there at that time.

Mr. SCUDDER. Yes.

Mr. DONDERO. I think you defined taconite itself in a previous hearing as simply meaning rock containing iron ore which has to be crushed and ground up.

Mr. BLATNIK. That is correct.

Mr. SCUDDER. We saw the operation of the various plants there.

Mr. FALLON. Does the chairman have any knowledge of how much high-grade ore is left in the Mesabi Range?

Mr. BLATNIK. Yes. We do have the best available information which is the known or proven reserves. As to the estimated reserves, the estimates vary. They will run anywhere from 14, to 16, to 18 years of life for the known and estimated open-pit high-grade ore reserves. But the trend is definitely downward; it is diminishing.

Mr. FALLON. There seems to be more there now than there was several years ago.

Mr. SCUDDER. It is increasing.

Mr. BLATNIK. Please proceed, Colonel.

Colonel NAUMAN. Additional clearance requirement as a result of vessel squat and operation in exposed water also affected the channel depths.

In addition to the channels which are being recommended there are being recommended also authorized anchorage areas required by the waterway whose depths are being recommended for improvement. They are at Point Iroquois Falls, to be deepened to 29 feet, and Lake Nicolet to be deepened to 28 feet. Both of these anchorages are in the St. Marys River.

An alternate plan of improvement for the St. Clair River at Southeast Bend proposes an artificial canal in Canada of 27.1-foot depth, 700 feet wide, and approximately 6 miles long. This cutoff channel is for two-way traffic and will extend in a straight line from the upper end of Southeast Bend on the St. Clair River to the existing improved channel at Lake St. Clair, below the bend, and would bypass the hazardous reverse curve in the existing improved river channel.

The plan of improvement which is proposed will provide depths in all of the connecting channels commensurate with those authorized for the St. Lawrence seaway from Montreal to Lake Erie.

The benefits for the project are derived from the more efficient Great Lakes fleet for the transportation of bulk commodities. Such a fleet would effect material savings in the transportation of these commodities. The total average annual benefits to the commerce of iron ore, grain, and stone as developed from commerce in these commodities which would benefit directly from increased depths in the connecting channels would be $9,868,000.

To determine the transportation savings, comparison was made of the fleet predicted for 1985 operating in the existing channels with the channels as they would be when they are improved. This comparison resulted in a per ton savings for bulk carriers of 15 cents and for self-unloaded vessels of 18 cents.

A major portion of the benefits for this project accrue from the more efficient movement of iron ore. However, in developing these benefits it was estimated only 65 million tons of iron ore traffic would be benefited from the increased depths. In developing these benefits no projection of tonnage was made for additional commerce likely to develop during the life of the project.

Mr. MACHROWICZ. One question, Colonel.

Colonel NAUMAN. Yes, sir.

Mr. MACHROWICZ. In determining this ratio of benefits, do you also take into consideration the traffic between Canadian ports?

Colonel NAUMAN. No, sir.

Mr. MACHROWICZ. So your ratio of benefits to costs is based solely on the traffic between American ports?

Colonel NAUMAN. That is correct.

Mr. MACHROWICZ. If you were to add to that the additional traffic between the Canadian ports there would be a greater benefit?

Colonel NAUMAN. Additional benefits. Yes, sir.

Mr. DONDERO. Outside of the one improvement that you suggest, all of the connecting channels seem to be in American waters. Is that correct?

Colonel NAUMAN. No, sir. There is one channel in Canada in the Detroit River. The Amherstburg Channel is in Canada and a portion of the Middle Neebish Channel in the St. Mary's River is on the Canadian side of the boundary.

Mr. DONDERO. Then there are 2 channels on the Detroit River, 1 in Canadian water and the other in American water? Is that correct?

Colonel NAUMAN. In places both channels are in Canadian water. Generally we refer to the Amherstburg Channel as being all in Canadian water and a portion of the Livingstone Channel, which is the downbound channel, in Canadian water.

Mr. DONDERO. Does Canada share at all in the cost of construction?

Colonel NAUMAN. Not in this plan, sir. The estimated cost to the United States for new work on this project at 1954 price levels is $110,327,000, exclusive of $27,500 for navigation aids, unless that in lieu of further improvement along the existing alinement of the Southeast Bend of the St. Clair River the cutoff channel is authorized and constructed. This would result in an additional cost to the United States of $5,491,000, exclusive of $124,000 for aids to navigation.

The total cost of the improvement is $115,818,000. The estimated annual benefits are $7,600,000 and the annual charges are $4,250,000, resulting in a benefit-cost ratio of 1.78 to 1.

Mr. MACHROWICZ. One question, Colonel. In determining that 1.78 benefit-cost ratio you are taking the $7,600,000 figure rather than the $9,868,000?

Colonel NAUMAN. Yes, sir.

Mr. MACHROWICZ. Can you explain to me why?

Colonel NAUMAN. Yes, sir. Harbor improvement was not considered in this report. A portion of the overall benefits which were derived from the savings in the improved connecting channels were set aside for future use in connection with harbor improvement.

The report was referred to the States of Michigan, Minnesota, Wisconsin, Illinois, Indiana, Ohio, Pennsylvania, and New York. In all cases these States concurred with the plan recommended by the Chief of Engineers. The report was also referred to the Departments of Commerce, Interior, and Labor, the Federal Power Commission, and the Public Health Service. These agencies do not, in general, object to this project. However, the Department of Commerce has this to say, and I quote:

> Our review has been limited to the question of navigational clearances in bridges. In this regard in estimating transportation benefits that would result from the improvement the report cites expected waterway traffic conditions projected for 50 years in the future, with the year 1985 estimated as the midpoint in the economic life of the proposed improvement. Yet, from the standpoint of navigational clearances in bridges, the report cites only the bridges presently crossing the waterways under study. Even then no specific mention is made of maintenance and operation costs on existing bridges due solely to navigational needs.
>
> Furthermore it would seem logical that under the waterway transportation conditions cited in the report that overland transportation also will continue to increase with a need for additional or replacement bridges during the lifetime of the project being considered. Exclusion of future bridge costs due solely to navigational needs from the navigation project evaluation obviously places that project in a favored position by assuming a static economy in related fields.

In response to this letter and comment the Chief of Engineers has this to say, and again I quote:

> * * * I believe that the points raised on navigation clearances as affected by the recommended increased depths are not relevant to the present case.
>
> The proposed improvement would provide primarily for increasing present project depths without increasing the widths in the connecting channels. Therefore, the navigational clearances necessary for any new bridge crossing the channel after improvement would be no greater than would be required for crossing the existing channel. The authorized project provides depths for ship drafts of 24 feet in downbound channels and 20 feet in upbound channels. The recommended modification provides for depths adequate for drafts of 25.5 feet in two-way and downbound channels. Since the present vertical bridge clearance over these waterways is 150 feet, as compared with the approved 120 feet over the St. Lawrence River, neither anticipated commerce on the proposed modification or on the seaway is expected to require any change in navigation clearances. Neither is it considered that the undetermined developments of future overland traffic, with reference to replacement or additional bridges, coming after the fact of existing or determinate waterway traffic, have any economic relation to the presently proposed improvement. I believe this conclusion is fully in accord with the position of the Corps of Engineers taken during preparation of your report on Navigation Clearance Requirements for Highway and Railroad Bridges, February 1955.

The report was also referred to the Bureau of the Budget and as yet no comment has been received from that Bureau. Thank you, Mr. Chairman.

Mr. BLATNIK. Thank you, Colonel. Are there any questions on my right?

Mr. MACHROWICZ. Mr. Chairman.

Mr. BLATNIK. Mr. Machrowicz.

Mr. MACHROWICZ. Colonel, these benefits which you have estimated, and the benefit-cost ratio which you have given us, is based on existing conditions, not taking the St. Lawrence Waterway into consideration?

Colonel NAUMAN. No, sir. It is based on prospective American commerce in the Great Lakes channels alone.

Mr. MACHROWICZ. Am I correct in stating that you feel that these channels are basically sound, even without the St. Lawrence Waterway? In other words, there is sufficient traffic in the Great Lakes area alone to justify these channels?

Colonel NAUMAN. Yes, sir.

Mr. BLATNIK. Any questions to my left?

Mr. CRAMER. What would be the controlling depths after the project is completed?

Colonel NAUMAN. Sir, rather than use controlling depths, we have related the project to a controlling safe draft of vessel of 25½ feet at low-water datum. The resulting depth would vary from 27 to 30 feet.

Mr. CRAMER. That is all.

Mr. BLATNIK. Colonel, the proposed channel improvement and deepening is consistent with Federal policy for about the last 75 years, is it not, in bringing up to date and making adequate navigation facilities to keep up with the growth of Great Lakes traffic and of Great Lakes vessels?

Colonel NAUMAN. Yes, sir; it is.

Mr. BLATNIK. And the new enlarged carriers which are now rapidly appearing on the scene cannot operate to maximum efficiency at the present controlling depths?

Colonel NAUMAN. That is certainly correct.

Mr. BLATNIK. As to the economic benefit-cost ratio which you state, Colonel, how does that compare with other navigation projects in the inland waterways of America?

Colonel NAUMAN. I do not know myself, sir. Do you know, Mr. Brennan?

Mr. BRENNAN. It is favorable, sir.

Mr. BLATNIK. It is favorable. It has been stated at times that transportation on the Great Lakes was perhaps the cheapest transportation in the world. When you consider that you can haul a ton of iron ore from Duluth down to Cleveland, a distance of some 800 miles for less than the cost of shipping it by rail overland a distance of about 68 to 72 miles, you can see the logic of that statement.

At this point, without objection from the committee, I would like to insert in the record of the hearings a letter of transmittal signed by General Sturgis, Chief of the Corps of Engineers, dated June 9, transmitting the report, addressed to the Secretary of the Army, with the report of the Corps of Engineers signed by General Robinson. We shall have both the letter of transmittal and the report of the Army engineers plus all enclosures included in the record as well as the letters and the reports of the Governors of the States affected, and the reports

of the respective bureaus and departments. They shall be incorporated at this point into the record.

(The material referred to is as follows:)

CORPS OF ENGINEERS, UNITED STATES ARMY,
BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
*Washington 25, D. C., January 20, 1955.*

Subject: Great Lakes connecting channels.
To: The Chief of Engineers, Department of the Army.

1. This report is in response to the following resolutions adopted September 27, 1951, March 25, 1953, and June 24, 1953, respectively:

"*Resolved by the Committee on Public Works of the House of Representatives, United States*, That the Board of Engineers for Rivers and Harbors be, and is hereby, requested to review the reports on Great Lakes—Connecting Waters, Principal Harbors and Rivers and Channels, submitted in House Document No. 253, 70th Congress, 1st session, and other pertinent reports, with a view to determining whether it is advisable to modify the existing project in any way at the present time, with particular reference to the modification and improvement of the channel in the Detroit River, Mich., leading to Lake St. Clair.

"*Resolved by the Committee on Public Works of the United States Senate*, That the Board of Engineers for Rivers and Harbors, created under section 3 of the River and Harbor Act, approved June 13, 1902, be, and is hereby, requested to review the report entitled 'Great Lakes—Connecting Waters, Principal Harbors and River Channels,' published as House Document No. 253, 70th Congress, 1st session, and other pertinent reports, with a view to determining the advisability of proceeding at this time with improvements in the Great Lakes connecting channels necessary to provide a channel depth of at least 27 feet, and with a view to preparing up-to-date estimates of the costs of such improvements.

"*Resolved by the Committee on Public Works of the House of Representatives, United States*, That the Board of Engineers for Rivers and Harbors be, and is hereby, requested to review the report entitled 'Great Lakes—Connecting Waters, Principal Harbors, and River Channels,' published as House Document 253, 70th Congress, 1st session, and other pertinent reports, with a view to determining the advisability of any further improvements at this time in the Great Lakes connecting channels for the accommodation of present and prospective commerce including consideration of a channel depth of 27 feet."

2. The five Great Lakes, Superior, Huron, Michigan, Erie, and Ontario, with their connecting channels form a chain of navigable waters extending from Minnesota, Wisconsin, and Illinois, eastward to the State of New York. Lake Superior, with the highest elevation, and Lake Michigan to its south, are the most westerly of the lakes. Although not directly interconnected, both have connection with Lake Huron at its northerly end. Lake Huron, extending southward along the lower peninsula of Michigan, discharges through connecting waters into Lake Erie south of Detroit. Lake Erie in turn extends easterly to the head of Niagara River which discharges into Lake Ontario. Lake Ontario, the most easterly of the lakes, is the source of St. Lawrence River which flows northeast to the Atlantic Ocean. With the exception of Lake Michigan, the Great Lakes are on the United States-Canadian border.

3. This report is concerned with the connecting channels between Lakes Superior and Huron; Michigan and Huron; and Huron and Erie. Navigable connection between Lake Erie and Lake Ontario is provided by the Canadian-constructed Welland Canal. Lakes Superior and Huron are connected by the improved St. Marys River, 63 miles long. Connection between Lakes Michigan and Huron is via the Straits of Mackinac which have required little improvement to afford the existing depths for navigation. Connection between Lakes Huron and Erie, a distance of 87 miles, is via the St. Clair River, Lake St. Clair, and Detroit River. The existing project for the channels connecting the four Great Lakes, under consideration in this report, provides for downbound channels suitable for vessels drawing 24 feet and where separate upbound channels are provided, depths therein suitable for vessels drawing 20 feet, when lake stages are at their established datum planes. Because the datum planes were lowered subsequent to initiation of construction of the authorized project and also because the large vessels of the present-day Great Lakes fleet require greater underclearances than contemplated in the design of the channels, adequate depths for vessels drawing 24 feet when lake levels are at present datums are not now available. Downbound channels have a controlling depth below the datum planes of about 25 feet and a limiting safe vessel draft of 22.3 feet and upbound channels have a

controlling depth of 21 feet with a limiting safe vessel draft of 18.0 feet. Characteristic features of the project channels are shown in table 3 of the report of the district engineer. The project also provides for: Compensating works at various places to avoid adverse effects on lake stages which might otherwise result from improvement of the channels; 4 parallel locks at St. Marys Falls, Sault Ste. Marie, Mich., near the head of St. Marys River; production of hydroelectric power at these falls; and 2 anchorage areas in St. Marys River. Principal features of the existing locks, all having lifts of 21.7 feet, are as follows:

| Lock | MacArthur | Poe [1] | Davis | Sabin |
|---|---|---|---|---|
| Clear width.....feet.. | 80 | 95 | 80 | 80 |
| Length between miter sills.....feet.. | 800 | 704 | 1,350 | 1,350 |
| Depth on controlling breast wall.....feet.. | 31 | 16.6 | 23.1 | 23.1 |
| Year completed..... | 1943 | 1896 | 1914 | 1919 |

[1] Replacement by a modern deep-draft lock is authorized.

Work remaining to be done under the existing project is the installation of guard gates for MacArthur lock, removal of Bridge Island from the westerly approach to MacArthur and Poe locks, Federal participation in the cost of replacing the railroad swing bridge which rests on this island with a new vertical-lift bridge, replacement of Poe lock, widening of the channel at two locations in St. Marys River for anchorage areas, widening of Southeast Bend in St. Clair River from 700 feet to 800 feet, deepening of the westerly 300 feet of the upbound Amherstburg channel (including the lower end of Ballards Reef channel) in Detroit River to 27 feet, and construction of necessary compensating works in St. Clair and Detroit Rivers. Costs to the United States for the existing project to June 30, 1954 were $89,912,142 for new work and $32,272,191 for maintenance, a total of $122,184,333. The estimated cost (1954 price basis) to complete the remaining works described above is $73,051,000 including $28,995,000 for replacement of Poe lock.

4. Opposite the United States locks in St. Marys River, Canada has provided a canal with single lock, 16.8 feet deep over the sills, opened to navigation in 1895. Navigation between Lakes Erie and Ontario is made possible by the Welland Canal, a Canadian waterway which has a controlling depth of 25 feet with depth of 30 feet over the miter sills of the locks. Deepening to a controlling depth of 27 feet has been authorized by Canadian legislation.

5. Natural deep water is generally available in the St. Lawrence River from Lake Ontario to the vicinity of Ogdensburg, N. Y., except in the Thousand Islands section where rock shoals have been removed by the United States and Canada to provide a 27-foot channel of limited width. Between Ogdensburg and Montreal, Canada has developed a system of canals with locks, affording controlling depths of 14 feet, to bypass various rapids in the St. Lawrence River. Below Montreal, Canada has provided a 35-foot deep channel to the sea. Recently Canada created a St. Lawrence Seaway Authority for the purpose of constructing by itself, or in cooperation with the United States, a deep waterway between Montreal and Lake Erie. By act of Congress approved May 13, 1954, the United States created the St. Lawrence Seaway Development Corporation and directed it to construct in United States territory navigation works with a controlling depth of 27 feet in channels and canals, and locks at least 800 feet long, 80 feet wide, and 30 feet deep over the sills in the International Rapids section of the St. Lawrence River, together with necessary dredging in the Thousand Islands section, and to operate and maintain such works in coordination with the St. Lawrence Seaway Authority of Canada. Planning for the works contemplates having the project in operation in the spring of 1959.

6. Under individual projects many United States ports on the Great Lakes have been provided with breakwaters and channels to meet the needs of the localities and to afford depths consistent with those in the Great Lakes connecting waters. Terminal facilities at the ports, provided by local interests, include efficient specialized equipment for transferring between ship and shore the bulk commodities which constitute the greater part of the lakes' commerce. Storage facilities, including huge modern grain elevators and areas for stockpiling, are available. These ports serve a large hinterland through connecting railroads; improved highways; and barge commerce on the Illinois Waterway, New York State system of canals, and the improved inland waterways with which they connect. Several important Canadian ports are situated on the Great Lakes.

7. Commerce on the Great Lakes is largely between the United States ports, with lesser amounts between United States and Canadian ports and between Canadian ports themselves. There is also a minor amount of commerce, less than 1 percent of the total, carried between Great Lakes and overseas ports via the St. Lawrence River. Total commerce on the connecting waters, considered individually, for the year 1953 and the average annual amounts for the 5-year period, 1949 through 1953, are shown in the following table:

| Period | St. Marys River (tons) | St. Clair River (tons) | Detroit River (tons) |
|---|---|---|---|
| 1953 | 132, 982, 053 | 129, 899, 214 | 140, 729, 410 |
| Average annual, 1949–53 | 115, 641, 000 | 114, 130, 900 | 124, 919, 000 |

Since a substantial portion of the commerce passes over more than one of the connecting channels, the foregoing figures are not additive. Excluding commerce wholly between foreign ports, the Great Lakes commerce totaled nearly 243 million tons in 1953. Iron ore, principally from Minnesota mines moving downbound from Lake Superior, is the major item of commerce. In 1953 about 75 percent of the commodity commerce passing through the canals at Sault Ste. Marie and 56 percent through Detroit River was iron ore and in the same year 28,115,559 tons of ore passed through the Straits of Mackinac 85 percent of which was in a westerly direction destined to industrial ports at the south end of Lake Michigan. Stone and grain are other important downbound commodities while the principal upbound commodity is coal. Vessel traffic over St. Marys River, St. Clair River, and Detroit River for the year 1953, when lake levels were above normal, is shown in the following table:

| Draft (feet) | St. Marys River | | St. Clair River | | Detroit River | |
|---|---|---|---|---|---|---|
| | Upbound trips | Downbound trips | Upbound trips | Downbound trips | Upbound trips | Downbound trips |
| 22 to 26 | 42 | 3, 111 | 14 | 2, 741 | 17 | 2, 573 |
| 22 and less | 13, 514 | 10, 475 | 10, 612 | 7, 595 | 15, 146 | 12, 386 |
| Total | 13, 556 | 13, 586 | 10, 626 | 10, 336 | 15, 163 | 14, 959 |

Because of ice, traffic on the Great Lakes is largely limited to about an 8-month navigation season from April to November, inclusive. The amount is fairly uniform throughout the season. The only vessels operating on a year-round basis are ferries not engaged in traffic between the lakes.

8. The Great Lakes cargo fleet includes about 300 vessels ranging in length from under 400 feet to 700 feet and over, and in individual cargo-carrying capacity between 6,600 and 26,800 tons at maximum loadline limits. Of some 286 cargo vessels of American registry engaged in the ore trade, over two-thirds are more than 40 years old and are depended on for over half the annual movement of iron ore. Because of high maintenance and operation costs the older vessels are the first to be taken out of service during slack demand periods. They are being gradually replaced by larger, faster, ships with greater loadline drafts.

9. Navigation interests desire sufficient depths in the two-way and downbound connecting channels, and for 300-foot widths in the principal upbound channels, at low water datum, to accommodate vessels with a draft of 25.4 feet giving due allowance for under-clearance, including that for squat required for large modern lake vessels. Specific requests are also made for deepening of the upper 6,000 feet of the upbound Amherstburg Channel in Detroit River (generally referred to as Ballards Reef Channel below Livingstone Channel) for its full width of 600 feet to accommodate vessels with drafts or 25.4 feet, straightening of the channel in upper Detroit River in the vicinity of Peach Island, elimination of Southeast Bend in lower St. Clair River, and widenings where the auxiliary upbound channel at Stag Island joins with the two-way channel in St. Clair River. Improvements requested in and near the Straits of Mackinac consist of deepening Grays Reef Channel to accommodate vessels with drafts of 25.4 feet; removal of Poe Reef Shoal to a depth of 30 feet; and provision of a depth

of 30 feet in Round Island Passage. The State of Minnesota requests deepening of the Great Lakes connecting channels to provide a depth of 27 feet from Duluth to the sea. Navigation interests point out that the potential economic advantages of the larger modern vessels are not being fully realized because of present inadequate channel depths. Deepening of the principal upbound channels for a portion of their widths is desired to provide an emergency channel in case of accident or deliberate action causing blockage of the regular downbound channels. Deepening of the upbound channels in the lower Detroit River is also desired to permit upbound movement of iron ore from the lower St. Lawrence River. There is widespread interest in obtaining depths in the connecting channels above Lake Erie equivalent to those authorized below Lake Erie to permit the upper lakes' area to take advantage of the St. Lawrence seaway.

10. The district engineer finds that further improvement of the connecting channels is necessary to serve adequately the fleet of existing and prospective Great Lakes vessels. His plan for that purpose provides for deepening the 2-way and downbound channels, the westerly 300 feet of width of the controlling upbound channels, and the anchorage areas in St. Marys River, sufficiently to accommodate with safety vessels loaded to a draft of 25.5 feet when water surfaces in the controlling lakes are at established low water datums. The relationship between safe ship draft and depths as proposed in the report is as follows: Primary consideration is given to (*a*) clearance, (*b*) squat, (*c*) exposure, and (*d*) nature of the channel bottom. The clearance allowance used varies from 0.5 feet in sheltered channels with soft bottoms to 2.5 feet in exposed channels with hard bottoms. A maximum allowance for squat of 2 feet is used in open river and lake channels. Thus the total allowances made for vessels underway varies from 1.5 feet to 4.5 feet. Application of these allowances gives proposed project depths ranging from 27 feet to 30 feet based on a proposed project ship draft of 25.5 feet. The plan also provides for a depth of 27.5 feet for the full width of Ballards Reef Channel, Detroit River, below its junction with Livingstone Channel in view of troublesome cross currents there. Included is some widening of the channel in upper Detroit River to ease navigation in the vicinity of Peach Island and minor widening of the two-way channel in St. Clair River at the junction of Stag Island East Channel which is an auxiliary channel for upbound vessels. The only work contemplated in the Straits of Mackinac area is deepening to 30 feet of Poe Reef Shoal and Round Island Passage. Deepening of Pelee Passage Shoal, in Lake Erie about 30 miles east of the mouth of Detroit River, to 28.5 feet is included in the plan. Details as to the channel depths proposed are shown in table 19 of the report of the district engineer. Study has been made to determine the extent of works that may be necessary to compensate for the potential effects of the channel deepening on lake levels. The district engineer finds that none are needed in St. Marys River. In St. Clair River, accomplishment of the presently authorized compensating works would offset the lowering effect on Lakes Michigan and Huron of both the proposed improvement and previous dredging. He finds that in Detroit River some overcompensation exists as a result of previous work and that the remaining compensation required can be obtained by construction of two dikes through deposition of spoil from the channel deepening. The district engineer estimates the total first cost of the improvement described, on a 1954 price basis, at $109,125,000, of which $109,027,000 is the Federal cost exclusive of $27,500 for navigation aids, and $70,500 is the non-Federal cost for lowering of cable crossings. Cost details are as follows:

| Channel designation | St. Marys River | Straits of Mackinac | St. Clair River | Lake St. Clair | Detroit River [1] |
|---|---|---|---|---|---|
| 2-way and downbound | $26,304,000 | $2,231,000 | $18,198,000 | $4,158,000 | $29,248,000 |
| Upbound | 14,127,000 | | | | 14,859,000 |
| Total | 40,431,000 | 2,231,000 | 18,198,000 | 4,158,000 | 44,107,000 |

[1] Includes cost for Pelee Passage, Lake Erie.

Annual carrying charges for the described improvement are estimated at $4.250,-000 including $200,000 for Federal maintenance of the channel works in addition to that now required and $2,100 for maintenance of navigation aids.

11. The district engineer confines his estimate of prospective commerce, for use in evaluating benefits of the proposed improvements, to movements to or from United States ports on the Great Lakes exclusive of St. Lawrence seaway

commerce. Additional unevaluated benefits will accrue in connection with commerce which is exclusively Canadian and with commerce entering or leaving the lakes through the St. Lawrence seaway. Movement of the prospective commerce in vessels loaded to take advantage of the increased depths proposed for the connecting channels will require deepening harbors and vessel berths at the terminals. Specific plans and recommendations for work of that nature are not presented by the district engineer. However, based upon considerable investigation he finds that sufficient deepening of harbors and terminals, commensurate with the planned channel depths, to accommodate the prospective commerce used in estimating benefits in his report can be accomplished at an estimated cost of $32,500,000 for construction with annual carrying charges estimated at $1,295,000. Thus his estimate of the annual carrying charges for the harbors plus the connecting channels is $5,545,000 of which 77 percent is for the connecting channels.

12. The prospective commerce to be benefited is estimated by the district engineer to average 88,300,000 tons annually over a 50-year period consisting of 65,000,000 tons of iron ore, 17,500,000 tons of stone, and 5,800,000 tons of grain. The estimate for ore takes into account reduction in use of ores from the Lake Superior region expected to be brought about by receipt of foreign ore through the St. Lawrence seaway and the high iron content of beneficiated taconite ores in prospect for shipment from the Lake Superior region. The district engineer points out that if the channels and harbors are deepened the Great Lakes fleet of the future will consist of larger, more efficient vessels than will be the case if the facilities are left with their present project depths. Taking this into account he estimates the average annual benefits through savings in shipping costs for the prospective benefited commerce, resulting from the proposed deepening of the channels and the related harbor work, at $9,868,000 and allocates 77 percent thereof, or $7,600,000, as justification for the proposed further improvement of the connecting channels. With the annual carrying charges estimated at $4,250,000, the benefit-cost ratio for the channel work is 1.78.

13. Deepening of Grays Reef Passage, Straits of Mackinac, as requested by local interests is not included in the plan for further improvement. This passage is used predominantly for traffic outbound from Lake Michigan and affords depths adequate for such use. Prospective benefits do not justify further deepening. The district engineer considers alternative plans for easing the bend in Detroit River opposite Peach Island but finds that they lack economic justification. He also considers elimination of the difficult Southeast Bend, St. Clair River, by providing a straight cutoff channel. He estimates the first cost for this cutoff at $7,834,000, exclusive of $174,000 for navigation aids, and the annual carrying charges at $303,200. The first cost for new work to widen Southeast Bend as authorized and to deepen the channel as proposed in the general plan, which work would be eliminated by the cutoff, is estimated at $2,343,000, with $50,000 additional for navigation aids, and the annual charges at $86,500. Substitution of the cutoff for the authorized work and for deepening in the existing channel alinement, would thus add an estimated $5,491,000 for new work, in addition to $124,000 for navigation aids, and would increase the estimated annual carrying charges by $216,700 of which $10,000 is for channel maintenance. Additional annual benefits attributable to the cutoff as evaluated by the district engineer, consisting of savings in vessel costs by reduction in the time required for transiting this section of river, approximate the added annual carrying charges. Taking into account the increase in vessel safety he considers this work justified. The cutoff would pass through Canadian territory. In the opinion of the district engineer the cutoff should be accomplished in lieu of further improvement of the bypass section of the existing channel provided negotiations can be concluded with Canada to permit it.

14. The district engineer recommends that the existing project for the Great Lakes connecting channels be modified to provide for improvement in accordance with his proposed general plan and that the alternative plan for a cutoff channel in Canada at Southeast Bend, St. Clair River be included in the plan, if prior to the initiation of construction in that reach it is found feasible of accomplishment. He recommends further that no realinement be authorized at the present time of the channel opposite Peach Island in the Detroit River. The division engineer concurs.

15. Local interests were informed of the recommendations of the reporting officers and given an opportunity to present additional information to the Board. Careful consideration has been given to the communications received.

VIEWS AND RECOMMENDATIONS OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS

16. The Board of Engineers for Rivers and Harbors agrees with the reporting officers that prospective benefits economically justify further improvement of the Great Lakes connecting channels as planned by the district engineer. For realization of the benefits, the proposed channel works will need to be supplemented by provision of increased depths at harbors. The district engineer takes this into account by prorating the overall benefits between the channel work and future harbor improvements.

17. As stated by the district engineer the proposed increased depths of the connecting channels are generally comparable to the authorized depth of 27 feet in the St. Lawrence seaway. The table in paragraph 84 of the report of the district engineer indicates the percentages of time during various subdivisions of the 8-month navigation season on the Great Lakes, April to November, inclusive, that depths, after deepening of the channels as proposed, will be adequate for safe navigation by vessels with drafts of 25.5 feet. The depths proposed in the report, corresponding to a safe draft of 25.5 feet, range from 27 to 30 feet depending upon local conditions in the various channels. The data in the cited table apply to the control point in the entire chain of connecting waters between Lake Superior and Lake Erie and this control point shifts in location depending upon whichever lake may have stages sufficiently low to be controlling at any specific time. Furthermore the data are based upon historic lake stages unadjusted to indicate probable future stages with present diversions into, and out of, Lakes Superior and Michigan and with a recently adopted rule curve for control at St. Marys Falls of outflows from Lake Superior. For these reasons the data by themselves do not satisfactorily indicate whether depths in the connecting channels after deepening as proposed will be commensurate with the authorized depth of the seaway. However subsequent to preparation of their reports, the reporting officers have made additional study of the probable future fluctuations of lake levels taking into account these factors. As a result the division engineer has advised the board that deepening in accordance with the report plan would not provide a depth of 27 feet continuously in the South Canal westerly approach to the locks at St. Marys Falls but that with an additional foot of depth there, the proposed improvements would provide a 27-foot depth throughout the connecting channels for 96 percent of the navigation season, applicable to seaway traffic. This additional foot of excavation in rock is estimated by the district engineer to cost $1,300,000. His reanalysis based on this increased depth and the modified lake level hydrographs indicates a negligible variation in the ratio of benefits to costs by reason of these changes.

18. The Board considers that while the proposed deepening of the connecting channels is based primarily on considerations of internal lake traffic, it is important that these channels be fully comparable to the St. Lawrence Seaway in order to insure a full navigation season on the Great Lakes for the potential seaway traffic. It therefore believes that the plan as originally submitted by the district engineer should be modified to include the additional 1 foot of depth at the cited location in upper St. Marys River.

19. The Board therefore recommends modification of the existing project for the Great Lakes connecting channels, Michigan, to provide for deepening and further improving the channels in St. Marys River, Straits of Mackinac, St. Clair River, Lake St. Clair, and Detroit River, generally in accordance with the plans of the district engineer for further improvement as shown in table 19 of his report and on the accompanying drawings, revised to include 1 foot of depth, in addition to that shown in the plan, in South Canal, upper St. Marys River, and with such further modifications thereof as in the discretion of the Chief of Engineers may be advisable; at an estimated cost to the United States of $110,327,000 for new work and $200,000 annually for maintenance in addition to that now required: Provided, that a cutoff channel be constructed in Canada at Southeast Bend, St. Clair River, generally in accordance with the alternative plan of the district engineer for that section and with such modifications thereof as in the discretion of the Chief of Engineers may be advisable, in lieu of further improvement along the existing alignment, if prior to initiation of construction in this reach accomplishment of the cutoff is found to be feasible; at an estimated additional cost to the United States of $5,491,000 for new work and $10,000 annually for maintenance.

For the Board:

B. L. ROBINSON,
*Major General, USA, Chairman.*

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
*Washington, D. C., June 9, 1955.*

Subject: Great Lakes connecting channels.
To: The Secretary of the Army.

1. I submit herewith for transmission to Congress the report of the Board of Engineers for Rivers and Harbors in response to resolution of the Committee on Public Works of the House of Representatives, adopted September 27, 1951, requesting the Board to review the reports on Great Lakes—connecting waters, principal harbors and rivers and channels, submitted in House Document No. 253, 70th Congress, 1st session, and other pertinent reports, with a view to determining whether it is advisable to modify the existing project in any way at the present time, with particular reference to the modification and improvement of the channel in the Detroit River, Mich., leading to Lake St. Clair; and a resolution of the Committee on Public Works of the United States Senate, adopted March 25, 1953, requesting the Board to review the report entitled "Great Lakes-Connecting Waters, Principal Harbors and River Channels," published as House Document No. 253, 70th Congress, 1st session, and other pertinent reports, with a view to determining the advisability of proceeding at this time with improvement in the Great Lakes connecting channels necessary to provide a channel depth of at least 27 feet, and with a view to preparing up to date estimates of the costs of such improvements; and also in response to resolution of the Committee on Public Works of the House of Representatives, adopted June 24, 1953, requesting the Board to review the report entitled "Great Lakes-Connecting Waters, Principal Harbors, and River Channels," published as House Document 253, 70th Congress, 1st session, and other pertinent reports, with a view to determining the advisability of any further improvements at this time in the Great Lakes connecting channels for the accommodation of present and prospective commerce including consideration of a channel depth of 27 feet.

2. After full consideration of the reports secured from the district and division engineers, the Board recommends modification of the existing project for the Great Lakes connecting channels, Michigan, to provide for deepening and further improving the channels in St. Marys River, Straits of Mackinac, St. Clair River, Lake St. Clair, and Detroit River, generally in accordance with the plans of the district engineer for further improvement as shown in table 19 of his report and on the accompanying drawings, revised to include 1.0 foot of depth, in addition to that shown in the plan, in South Canal, upper St. Marys River, and with such further modifications thereof as in the discretion of the Chief of Engineers may be advisable; at an estimated cost to the United States of $110,327,000 for new work and $200,000 annually for maintenance in addition to that now required: Provided, that a cutoff channel be constructed in Canada at Southeast Bend, St. Clair River, generally in accordance with the alternative plan of the district engineer for that section and with such modifications thereof as in the discretion of the Chief of Engineers may be advsiable, in lieu of further improvement along the existing alignment, if prior to initiation of construction in this reach accomplishment of the cutoff is found to be feasible; at an estimated additional cost to the United States of $5,491,000 for new work and $10,000 annually for maintenance.

3. After due consideration of these reports, I concur in the views and recommendations of the Board.

S. D. STURGIS, Jr.,
*Major General, USA, Chief of Engineers.*

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DEPARTMENT OF LABOR,
OFFICE OF THE ASSISTANT SECRETARY,
*Washington.*

Maj. Gen. S. D. STURGIS, Jr.,
*United States Army, Office of the Chief of Engineers,*
*Department of the Army, Washington 25, D. C.*

DEAR GENERAL STURGIS: This is in reply to your letter of February 21 to Secretary Mitchell requesting comments on the proposed Great Lakes connecting channels project.

Our analysis of the report indicates that the proposed project could have a generally beneficial effect on the entire area covered by the project. Although it

would be of importance from a national as well as regional point of view, its effects on matters of interest to the Department of Labor appear to be limited.

Thank you for the opportunity to review this report.

Sincerely yours,

ROCCO C. SICILIANO,
*Assistant Secretary of Labor.*

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FEDERAL POWER COMMISSION,
*Washington 25, April 22, 1955.*

Subject: Great Lakes connecting channels.

Maj. Gen. S. D. STURGIS, Jr.,
*Chief of Engineers, Department of the Army,*
*Washington 25, D. C.*

DEAR GENERAL STURGIS: This is in reply to your letter of February 21, 1955, inviting comments by this Commission relative to your proposed report and to the review reports of the Board of Engineers for Rivers and Harbors and of the division and district engineers on the Great Lakes connecting channels.

These reports of your Department are in response to resolutions of the Committee on Public Works of the House of Representatives, adopted September 27, 1951, and June 24, 1953, and of the Committee on Public Works of the United States Senate, adopted March 25, 1953. Those resolutions requested a review of the reports on the Great Lakes connecting waters, principal harbors and river channels to determine the advisability of any modification or further improvement at this time in the Great Lakes connecting channels, including consideration of the improvement of the channel in the Detroit River, Mich., to Lake St. Clair and improvement in Great Lakes connecting channels necessary to provide a channel depth of at least 27 feet, and with a view to preparing up-to-date estimates of costs of such improvements.

The cited reports recommend modification of the existing project for the Great Lakes connecting channels to provide a minimum channel depth of 27 feet below low-water datum with a resulting safe draft of 25.5 feet, to provide adequately for present and future requirements of deep-draft navigation in the connecting channels; deepening of several anchorage sites; and widening and realinement of several channels. It is estimated the total Federal investment in the recommended improvements would be $110,327,000. On the basis of the costs and benefits shown in the report, the improvements would be economically justified.

The staff of the Commission has reviewed the reports of your Department and advises that it concurs in the conclusions in the reports that the hydroelectric power installations on the Niagara and St. Lawrence Rivers will not be affected by the improvements. The staff reports that the deepening of the channel in the St. Marys River will reduce the depth of water over the lower lock sills by about 0.12 feet, which will increase the effective head on the hydroelectric power installations at the falls by about that amount. The resulting increase in the output of these installations would be insignificant.

Based on its review of the report of your Department and the studies of its staff, the Commission concludes that the proposed navigation improvements of the Great Lakes connecting channels will not significantly affect existing or potential hydroelectric power development in the Great Lakes Basin.

Sincerely yours,

JEROME K. KUYKENDALL, *Chairman.*

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LANSING, MICH., *April 7, 1955.*

Maj. Gen. S. D. STURGIS, Jr.,
*Chief of Engineers, United States Army,*
*Washington, D. C.:*

Reference connecting channel report. Without regard to question of seaway benefits, Michigan present waterborne transportation requires prompt construction of modern deep-draft channels as set forth in your report. The economic benefits to America's industry and agricultural heartland far outweigh the costs. I urge favorable action.

GOV. G. MENNEN WILLIAMS.

JUNE 11, 1955.

Hon. ROWLAND R. HUGHES,
*Director, Bureau of the Budget.*

DEAR MR. HUGHES: In accordance with section 4 of Executive Order No. 9384 dated October 4, 1943, there is submitted a copy of the report of the Chief of Engineers, together with accompanying papers and illustrations, on a review of reports on Great Lakes connecting channels. This investigation was requested by resolutions of the Committee on Public Works, House of Representatives, and the Committee on Public Works, United States Senate, adopted on September 27, 1951, June 24, 1953, and March 25, 1953, respectively.

Information is requested as to the relationship of the proposed report to the program of the President. Proposed draft of letter transmitting this report to Congress is attached.

The report is being submitted to your office in advance of the receipt of the comments of the Public Health Service. When the comments of that agency are received they will be forwarded to your office promptly.

Sincerely yours,

GEORGE H. RODERICK,
*Assistant Secretary of the Army (CMA).*

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COMMONWEALTH OF PENNSYLVANIA,
GOVERNOR'S OFFICE,
*Harrisburg, March 22, 1955.*

Maj. Gen. S. D. STURGIS, Jr.,
*Chief of Engineers,*
*Department of the Army,*
*Washington, D. C.*

DEAR GENERAL STURGIS: I have received your letter of February 21, with attached review of reports on Great Lakes connecting channels, requesting comments of the Commonwealth of Pennsylvania upon the recommended plan of improvements.

The report states that, exclusive of any benefits which may accrue to commerce entering the Great Lakes through the St. Lawrence seaway, the proposed plan of improvements makes possible to the predicted fleet a reduction in the unit costs of transportation of $0.15 per ton and $0.18 per ton dependent upon the type of carrier and that a favorable benefit-cost ratio of 1.78 to 1 is estimated in the economic analysis of the plan of improvement.

The Board of Engineers for Rivers and Harbors in its recommendations note that the prospective benefits economically justify further improvements and for realization of these benefits the proposed channel works should be supplemented by provision of increased depths at harbors.

It is requested, in line with the Board's recommendations, that Erie Harbor be increased from its present project depth of 25 feet to 27 feet, in order that the 1 harbor on the Great Lakes in the Commonwealth of Pennsylvania would benefit directly from the proposed plan of improvement and the authorized St. Lawrence seaway.

The district engineer recommends with concurrence by the Board that, in view of the general nature of the benefits anticipated from provision of the proposed plan of improvements of the connecting channels, it is considered equitable that the costs of the plan be borne, in its entirety, by the United States. I too concur in this traditional concept that the benefits of commerce are enjoyed not alone by the industry and citizens of the States bordering the project, but by all those who ultimately use the products transported.

I concur with the recommendation of the report and urge that construction be initiated and completed at the earliest practical date.

With kindest regards, I am,

Sincerely yours,

GEORGE M. LEADER.

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
*Washington 25, D. C., May 19, 1955.*

Hon. GEORGE M. LEADER,
*Governor of Pennsylvania, Harrisburg, Pa.*

DEAR GOVERNOR LEADER: Reference is made to your letter of March 22, 1955, commenting on my proposed report and the report of the Board of Engineers for Rivers and Harbors on the Great Lakes connecting channels.

I note that you request that consideration be given to increasing project depths in Erie Harbor to 27 feet. The improvement of Erie Harbor as requested is not included within the limits of the project as presently authorized by Congress and accordingly, the Corps of Engineers has no authority nor funds to provide the desired improvement, nor is there any authority available at this time under which a study of such improvement could be made. The necessary authority for a study could be provided by a resolution of the Public Works Committee of Congress.

As provided under the law, your views will accompany the Corps of Engineers report to Congress.

Sincerely yours,

S. D. STURGIS, Jr.
*Major General, United States Army, Chief of Engineers.*

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STATE OF MINNESOTA,
EXECUTIVE OFFICE,
*St. Paul, April 6, 1955.*

Maj. Gen. S. D. STURGIS, Jr., United States Army,
*Chief of Engineers, Department of the Army,*
*Office of the Chief of Engineers, Washington, D. C.*

DEAR GENERAL STURGIS: This relates to the project now under consideration by the Corps of Engineers for the deepening and improvement of navigation channels connecting the Great Lakes between Lakes Superior and Huron, Lakes Huron and Michigan, and Lakes Huron and Erie.

According to information given me by our State department of conservation, after a review of the report of the district engineer and the report of the Board of Engineers for Rivers and Harbors, the proposed improvements will be advantageous to the interests of navigation in Minnesota, as well as other States bordering on the Great Lakes.

Therefore, I am pleased to concur in the recommendations for this project made in the report of the district engineer, and the Board of Engineers for Rivers and Harbors, and to urge that it be carried out as soon as possible.

Sincerely yours,

ORVILLE L. FREEMAN.

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OFFICE OF THE GOVERNOR,
*Springfield, April 29, 1955.*

The CHIEF OF ENGINEERS,
*Department of the Army,*
*Washington, D. C.*

DEAR SIR: On February 25, 1955, in accordance with Public Law 14, 79th Congress, you transmitted to the State of Illinois, for official comment, a copy of your proposed report on Great Lakes connecting channels—further improvement for navigation.

The report has been carefully reviewed by the State water resources and flood control board. The board recommends that the State concur in the conclusions and recommendations of your report.

Therefore, on behalf of the State of Illinois, I concur in the findings of your report on further improvement of the Great Lakes connecting channels.

Very truly yours,

WILLIAM G. STRATTON, *Governor.*

STATE OF INDIANA,
FLOOD CONTROL AND WATER RESOURCES COMMISSION,
*Indianapolis, Ind., February 28, 1955.*

Maj. Gen. S. D. STURGIS, Jr.,
*Chief of Engineers, Corps of Engineers,*
*Department of the Army, Office of the Chief of Engineers,*
*Washington, D. C.*

DEAR GENERAL STURGIS: Your communication in accord with section 1 of Public Law 14, 79th Congress, regarding reports of the Board of Engineers for Rivers and Harbors and of the district and division engineers on Great Lakes connecting channels was received in this office February 25, 1955.

The Honorable George N. Craig, Governor of Indiana, endorses the improvements of these channels, as specified in the reports, because of the prospect for vastly greater port activity in future years along the Indiana shore of Lake Michigan.

The Indiana Flood Control and Water Resources Commission and the Indiana Board of Public Harbors and Terminals also support fully the aims of such channel projects as outlined in the reports, regarding them as most important to the continued expansion of navigation on the Great Lakes.

Sincerely yours,

ROBERT W. KELLUM,
*Executive Secretary.*

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STATE OF NEW YORK,
DEPARTMENT OF PUBLIC WORKS,
*Albany, March 11, 1955.*

Re your file ENGWD, Great Lakes Connecting Channels

Maj. Gen. S. D. STURGIS, Jr.,
*Chief of Engineers, Department of the Army,*
*Washington, D. C.*

DEAR GENERAL STURGIS: Your communication of February 21, 1955, to Superintendent B. D. Tallamy requests our comment on a review of reports on Great Lakes connecting channels.

We have completed our review of the project and concur in the report.

Very truly yours,

JOHN W. JOHNSON,
*Superintendent of Public Works.*

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DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
*Washington 25, D. C., May 11, 1955.*

Maj. Gen. S. D. STURGIS, Jr.,
*Chief of Engineers, Department of the Army,*
*Washington 25, D. C.*

DEAR GENERAL STURGIS: This is in reply to your letter of February 21, transmitting for our comments your proposed report, together with the reports of the Board of Engineers for Rivers and Harbors, and of the division engineer, north central division, and the district engineer, Detroit district, on a review of reports on Great Lakes connecting channels.

Your report recommends modification of the existing project for the Great Lakes connecting channels, Michigan, to provide for deepening and further improving the channels in St. Marys River, Straits of Mackinac, St. Clair River, Lake St. Clair, and Detroit River.

The Fish and Wildlife Service has contacted the Michigan Department of Conservation and reports that dredging, since it will be confined generally to existing channels, will have only minor harmful effects on fish and wildlife. Spoil disposal, however, could have effects of much greater concern to wildlife interests. In order to prevent such effects insofar as possible, it is requested that the Corps of Engineers cooperate with the Michigan Department of Conservation in formulating definite spoil-disposal plans.

One other feature of importance is the possible effect proposed plans may have on natural water levels in the upper lakes, particularly Lake St. Clair. A slight fluctuation in levels in these lakes could adversely affect extensive lake-fringe marshes. For this reason it is recommended that the Corps of Engineers consult with the department of conservation in regard to the installation and operation of the compensating structures presently proposed.

The Fish and Wildlife Service in a letter to the International Joint Commission, dated February 2, 1953, recommended that one gate at each end of Soo locks be kept half open to provide adequate flows for rainbow trout spawning in the St. Marys River below. This recommendation was also forwarded to the district engineer at Detroit, Mich. As there is no basis for changing this recommendation, provision of such flows should be a part of any plan of improvement for this area.

We appreciate the opportunity of commenting on your report.

Sincerely yours,

FRED G. AANDAHL,
*Assistant Secretary of the Interior.*

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
*Washington 25, D. C., June 9, 1955.*

The honorable the SECRETARY OF THE INTERIOR.

DEAR MR. SECRETARY: Reference is made to the Assistant Secretary's letter of May 11, 1955, containing your comments on the proposed report of the Chief of Engineers on the Great Lakes connecting channels. As provided under the law, the views of the Department of the Interior will accompany the report to Congress.

With respect to the Department's comment concerning spoil-disposal areas, I wish to assure you that full cooperation with the Michigan Department of Conservation by the corps will be effected in the development of plans for disposal of dredged materials. With regard to the effect of the project on the water levels of the Great Lakes, detailed hydraulic studies have been undertaken and compensating works are included in the plan of improvement which will assure that the lake levels will not be adversely affected. The fluctuations of the levels will remain the same as under present conditions.

With reference to the comment on operation of the Soo locks, the responsibility for regulation of Lake Superior and of the outflows from Lake Superior through the St. Marys River is assigned to the International Lake Superior Board of Control under the supervision of the International Joint Commission. This is a separate matter and is in no way affected by the plan of improvement recommended in the report on the Great Lakes connecting channels.

Sincerely yours,

E. C. ITSCHNER,
*Brigadier General, USA, Acting Chief of Engineers.*

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DEPARTMENT OF AGRICULTURE,
*Washington 25, D. C., June 4, 1955.*

The honorable the SECRETARY OF THE ARMY.

DEAR MR. SECRETARY: This is in reply to the Chief of Engineers' letter of February 21, 1955, transmitting for our review and comment a copy of his proposed review report on Great Lakes connecting channels.

The report is concerned with the deepening and further improvement of the channels in St. Marys River between Lakes Superior and Huron; in the Straits of Makinac between Lakes Michigan and Huron; and in St. Clair River, Lake St. Clair, and Detroit River connecting Lakes Huron and Erie.

The estimated cost to the United States is $110,327,000 for new work and $200,000 annually for maintenance in addition to that now required. An estimated non-Federal cost of $70,500 for lowering of cable crossings is also involved.

As recognized by the Chief of Engineers, the proposed project does not directly affect the responsibilities of this Department. However, because of its significance from both regional and national standpoints, it has been reviewed with considerable interest.

We appreciate your courtesy in making the report available to us.

Sincerely yours,

E. L. PETERSON, *Assistant Secretary.*

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THE UNDER SECRETARY OF COMMERCE
FOR TRANSPORTATION,
*Washington 25, May 9, 1955.*

Maj. Gen. S. D. STURGIS, Jr.,
*Chief of Engineers, Department of Army,*
*Washington 25, D. C.*

DEAR GENERAL STURGIS: Further reference is made to your letter of February 21 requesting Department of Commerce comments concerning your proposed review report on Great Lakes connecting channels.

Our review has been limited to the question of navigational clearances in bridges. In this regard in estimating transportation benefits that would result from the improvement, the report cites expected waterway traffic conditions projected for 50 years in the future, with the year 1985 estimated as the midpoint in the economic life of the proposed improvement. Yet, from the standpoint of navigational clearances in bridges, the report cites only the bridges presently crossing the waterways under study. Even then no specific mention is made of maintenance and operation costs on existing bridges due solely to navigational needs. Furthermore it would seem logical that, under the waterway transportation conditions cited in the report, overland transportation also will continue to increase with a need for additional or replacement bridges during the lifetime of the project being considered. Exclusion of future bridge costs due solely to navigational needs from the navigation project evaluation obviously places that project in a favored position by assuming a static economy in related fields.

It may be of interest to you to know that in his letter of March 11, 1955, transmitting an advance copy of the Commerce report on Navigational Clearances Requirements for Highway and Railroad Bridges to the Secretary of Defense, the Secretary of Commerce stated: "I note that the Department of Defense plans to continue to study this basic problem. I am told it was the understanding of representatives of this Department that last October the Corps of Engineers had under way efforts to develp a method for including added bridge costs due to navigational needs in reports of Federal navigation projects proposed for future study. I assume that when drafted the corps proposal will be discussed with Commerce representatives, who are prepared to undertake these discussions at the convenience of your people."

It is assumed that, in conformity with usual procedures, a copy of this reply will accompany your report when it is transmitted to the Bureau of the Budget and to the Congress.

Very truly yours,

PAUL F. ROYSTER,
*Assistant to the Under Secretary.*

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JUNE 9, 1955.

The honorable the SECRETARY OF COMMERCE.

DEAR MR. SECRETARY: I have carefully considered the letter of May 9, 1955, from Mr. Royster, Assistant to the Under Secretary of Commerce for Transportation, commenting on the proposed report of the Chief of Engineers on the Great Lakes connecting channels, and I believe that the points raised on navigation clearance as affected by the recommended increased depths are not relevant to the present case.

The proposed improvement would provide primarily for increasing present project depths without increasing the widths in the connecting channels. Therefore, the navigational clearances necessary for any new bridge crossing the channel after improvement would be no greater than would be required for crossing the existing channel. The authorized project provides depths for ship drafts of 24 feet in downbound channels and 20 feet in upbound channels. The recommended modification provides for depths adequate for drafts of 25.5 feet in two-way and downbound channels. Since the present vertical bridge clearance over these waterways is 150 feet, as compared with the approved 120 feet over the St. Lawrence River, neither anticipated commerce on the proposed modification or on the seaway is expected to require any change in navigation clearances. Neither is it considered that the undetermined developments of future overhead traffic, with reference to replacement or additional bridges, coming after the fact of existing or determinate waterway traffic, have any economic relation to the presently proposed improvement. I believe this conclusion is fully in accord with the position of the Corps of Engineers taken during preparation of your

report on Navigation Clearance Requirements for Highway and Railroad Bridges, February 1955.

In accordance with your request your letter and this reply will accompany the report to the Bureau of the Budget.

Sincerely yours,

E. C. ITSCHNER,
*Brigadier General, USA, Acting Chief of Engineers.*

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STATEMENT OF GOV. ORVILLE L. FREEMAN, STATE OF MINNESOTA, ON GREAT LAKES-ST. LAWRENCE CONNECTING CHANNELS

As Governor of Minnesota, I wish to place on record a most emphatic endorsement of the proposed improvements on the harbors and connecting channels of the Great Lakes as proposed in this legislation now under consideration.

It is our conviction that only by these improvements, as previously outlined and recommended to you by the United States Corps of Engineers, can the navigation and commerce anticipated by previous legislation and appropriations be realized. It is similarly our conviction that the economic warrant for the improvements recommended are justified by the facts now in process of being presented to you.

At the present time, the State of Minnesota is enjoying unprecedented economic growth. Agricultural and industrial production reaches new heights with every year. It is our determination that growth shall continue. The only pronounced influence retarding that growth is the cost of long-distance transportation. Our position in the center of the continent is the controlling factor in fixing those costs.

At the same time that geography has imposed high transportation costs on freight using land transportation, it has afforded a means of relieving those charges through low-cost water transportation possibilities. The Atlantic Ocean and east coast ports can be opened to deep-draft vessels through the economical means afforded by those St. Lawrence and Great Lakes improvements already authorized and those involved in this proposed legislation. No continent, other than the North American, offers such possibilities to inland areas. It borders on the sacrilegious should we, as a people, fail to act upon those possibilities.

The exploitation of those possibilities has been the aspiration and dream of our midcontinent people for a century. Ever since 1918, the State of Minnesota has had a special agency of its government (Great Lakes-St. Lawrence Tidewater Commission) to promote this project. Should this first session of the 84th Congress authorize the channel and harbor improvements, named in the act now under consideration, that whole midcontinent area will experience a stimulation for its industry and trade which will directly and immediately increase, materially, its economic well-being; and indirectly and subsequently add to the prosperity of the Nation as a whole.

During the past years when this great and good project of Great Lakes improvement has been in process of planning and promotion, the Nation has seen other and much larger public works come into being through the application of Federal funds. The Panama Canal was followed by giant dams to the south and west. Both coasts and the States bordering on the Gulf of Mexico have benefited from extensive harbor improvements. Irrigation, power development, national parks, and tremendous military installations have found their proper place; and the means of coming into being through taxes paid by Minnesota and the other 47 States.

While our congressional delegation has supported these, and we have cheerfully paid our share of their costs, there has inevitably developed a question as to why this proposal of Great Lakes' improvement or its completion must always be deferred until some others had first been authorized. Minnesota, nevertheless, has gone along through its desire to improve the general welfare. We do now feel, however, that our time has come; and that vessels of 27-foot draft should in the near future be able to dock in our Lake Superior harbor berths.

In summarizing our support of this legislation now under consideration, we do so on the basis that—

1. The most expert authority upon which you can draw, that of the United States Corps of Engineers and all other unprejudiced sources of information on it, endorse its legitimacy from the point of view of the economics and mathematics involved.

2. The low-cost waterborne transportation facilities to be made available by this legislation will have an immediate and beneficial effect on the economy of the midcontinent area; and indirectly be of material value to the Nation as a whole.

3. On the basis of simple equity, our State and its immediate neighbors should be the beneficiary of a worthy project of the nature proposed before other and more favored areas, in terms of Federal aids, are promoted with still further subsidies for projects sponsored by them.

Minnesota petitions your fair consideration and judgment. Knowing your willingness to give that consideration and judgment, and the decisions you will reach in so doing, we do thank you.

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PUBLIC SERVICE COMMISSION OF WISCONSIN
*Madison, Wis., March 2, 1955.*

Gen. S. D. STURGIS, Jr.,
*Chief of Engineers, Department of the Army,*
*Washington, D. C.*

DEAR GENERAL STURGIS: This is in response to your letter of February 21, 1955, with enclosed copy of your proposed report to the Secretary of the Army together with the reports to you from the Board of Engineers for Rivers and Harbors and from the district and division engineers on a review of reports on Great Lakes connecting channels, for my comments as the designated representative of the Governor's office.

It is noted that the recommendation of the Board, with which you concur, calls for channel depths of from 27 to 30 feet, depending upon the nature of the channel, in order to provide a safe ship draft of 25.5 feet. It is further noted that to accomplish this objective, with the outflows of Lake Superior controlled in accordance with the recently adopted rule curve, it is proposed to deepen the South Canal westerly approach to the locks at St. Marys Falls 1 foot more than originally planned. It is noted that the project as proposed would make the connecting channels fully comparable to the St. Lawrence seaway.

I have discussed the proposals with representatives of the interested State agencies and of the Milwaukee Board of Harbor Commissioners. The comments of all of those agencies were faborable. The governors committee for the St. Lawrence seaway project and the Wisconsin Deep Waterways Commission, as well as other organizations in Wisconsin, have given the proposed project active support.

The project would be a major improvement to water transportation in the upper Great Lakes and of great benefit to the citizens of Wisconsin as a whole.

Very truly yours,

GEORGE P. STEINMETZ, *Commissioner.*

Mr. MACHROWICZ. Do you have the Buffalo Port of Commerce letter, Mr. Chairman?

Mr. BLATNIK. That will come in probably in the testimony. I should also like to have included in the record the letter from the Governor of the State of Minnesota. We had several requests for either written statements to be inserted or brief oral statements to be made by several of our colleagues who are either authors or supporters of this legislation.

Are there any further questions of the Corps of Engineers?

(No response.)

Mr. BLATNIK. Thank you very much, Colonel. May we ask you to stand by? We have been pressed for time, and our schedule has been sort of disrupted today. We hope to complete this testimony tomorrow morning, and if we need more information from you would you be good enough to stand by until then?

Colonel NAUMAN. Thank you, Mr. Chairman. I will be available.

Mr. BLATNIK. The next scheduled witness was Adm. Lyndon Spencer, president of the Great Lakes Carriers Association, but in view of the quorum call in the House the Chair will suggest that we wait over until 10 a. m. tomorrow morning unless there are any objections, or other comments from the members.

Mr. CRAMER. I so move, Mr. Chairman.

Mr. BLATNIK. Admiral, is it possible for you to stay over until tomorrow?

Admiral SPENCER. If it is necessary I will stay over as long as you wish.

Mr. MACHROWICZ. Mr. Chairman, I am informed we may possibly meet in the House tomorrow at 10 a. m. In view of that I wonder if we could not continue this afternoon if we can get the permission of the House. There is a possibility that the House may meet tomorrow at 10 a. m.

Mr. BLATNIK. The Chair will announce that there will be a request of the Speaker and if permission is granted we will meet at 2 o'clock this afternoon to complete as much of the hearings as possible, and the members will be so notified.

The subcommittee is adjourned to the further call of the Chair.

(Whereupon, at 12:15 p. m. the subcommittee adjourned subject to the call of the Chair.)

AFTERNOON SESSION

Mr. BLATNIK. The committee will come to order.

We will resume hearings on the bills dealing with the Great Lakes connecting channels, H. R. 2552, by the chairman of the subcommittee, and H. R. 660, by Mr. Dondero.

Our next witness is Adm. Lyndon Spencer, president of the Lake Carriers' Association, with offices in Cleveland, Ohio. Admiral, will you please take the stand?

## STATEMENT OF LYNDON SPENCER, PRESIDENT, LAKE CARRIERS' ASSOCIATION

Admiral SPENCER. Thank you, Mr. Chairman and members of the committee.

As you have already said, my name is Lyndon Spencer and I am president of the Lake Carriers' Association, with offices in Cleveland, Ohio.

I appear here on behalf of the 27 companies having membership in the association. These companies operate on the Great Lakes a total of 315 vessels having a gross registered tonnage of 2,173,840. With your kind permission I should like to talk for just a few minutes about the connecting channels of the Great Lakes and their importance to transportation, to the national economy and to any future defense efforts

While the five Great Lakes are of themselves navigable, it has been found advisable in the past to make certain improvements in the connecting waters and channels to the end that the raw materials so abundantly provided by nature in the basin of the Great Lakes and so urgently needed in the development and protection of the whole country, might move freely and cheaply in ships over the entire waterway. Improvements have been made in the St. Marys River, the St. Clair River, Lake St. Clair, the Detroit River, and in the Straits of Mackinac.

As the country has grown and developed, and as the demand for basic commodities has continually increased, the vessels used on the Great Lakes have been built larger and larger. Most of the time the

ships can load more deeply than the connecting channels will permit with safety, and consequently they must run uneconomically with less than full cargoes.

The basic project which provided channels adequate for vessels drawing 20 feet when the lakes were at datum was adopted in 1892. At that time commerce through the St. Marys River was about 11 million tons annually and the average iron ore cargo was about 1,750 tons. By 1929, when the existing project was being considered, traffic through the St. Marys River had increased to 92 million tons and the average cargo of iron ore was approximately 9,600 tons. In 1953, when the most recent survey was authorized, traffic through the St. Marys River reached 128½ million tons and cargoes of iron ore averaged around 12,000 tons.

All during World War II and the Korean difficulty, the operators of vessels on the Great Lakes were under constant pressure from several agencies of the Federal Government to increase the carrying capacity of their fleets to meet the requirements of industry for basic commodities in any possible emergency. This they did at a cost of from 6 to 7 million dollars per vessel for each of the 25 new ships built during the past 4 years. Now they find that these new vessels often must run at an economic loss because the connecting channels are not deep enought to permit full loads.

The connecting channels are presently maintained so as to provide a safe depth of at least 24.8 feet in the St. Marys River and 25 feet in the other downbound channels at low water datum. Low water datum is a reference mark used by the Corps of Engineers. It is different for the several lakes, but in all cases represents an average lake level. Usually, the water levels are somewhat above low water datum but occasionally they go down to, or even below these marks.

The depth of water available is not the depth to which vessels can load. Allowances must be made for exposure, squat, wind, clearance, and other factors. The Lake Carriers' Association has considered for many years that a total allowance of 2.5 feet is the very least that can be used with safety. When this allowance is subtracted we find that when lake levels are at datum the maximum possible drafts are 22.3 feet in the St. Marys River and 22.5 feet in the other downbound channels.

Perhaps I should explain there is no inconsistency there with what Colonel Nauman said this morning, that in the recommendation for deepening the channel in some cases they would go only to 27 feet although they would provide a safe draft of 25.5 feet. In recommending to our member companies the safe draft for vessels, we figure for the whole river. If there is any place in there where it needs an allowance of 2.5 feet, we have to make if for the whole river and we cannot recommend a draft for each 100 feet. So it is true 27 feet might provide a safe draft of 25.5 feet in certain places in the channel, whereas elsewhere in the channel it would need an allowance of at least 2.5 feet.

Mr. DONDERO. To what percentage do you now load vessels in the Great Lakes? I mean to what percentage of their capacity?

Admiral SPENCER. It depends entirely on the lake levels. I have some figures later which will show how much we may lose at different lake levels, if that will answer your question.

It should also be noted that where separate channels are provided for upbound traffic, a depth of water of only 21 feet is provided at low

water datum. Should the separate downbound channels ever become blocked, downbound vessels would have to use the upbound channels and would be limited to a draft of 18.5 feet if the lake levels were at datum.

Among the vessels enrolled in the Lake Carriers' Association are 251 iron-ore carriers. Of these, 53, or nearly 21 percent, are authorized by their load line certificates to load to depths greater than 22.3 feet. The loss in carrying capacity of these vessels for an entire season would be over 3 million tons if the water levels were at datum, better than one and a half million tons with a foot more water, and more than a half a million tons with 2 feet of water above datum.

Does that answer your question, Mr. Dondero?

Mr. DONDERO. To a very large extent.

Admiral SPENCER. These are losses in carrying capacities, and they are also economic losses because a ship can run with a full load at just about the same cost and in the same time as with only a partial load. Knowing that the present rate for the transportation of iron ore from the head of the lakes to Lake Erie ports is about $1.60 per gross ton, you can easily figure the rather staggering potential economic loss.

While it is true that the water levels on the Great Lakes have been well above datum for the past several years, it is equally true that the peak in the present cycle was reached in 1952. A gradual lowering of the lake levels can now be expected for some years to come. No one can tell how long this decline will continue or how low it will go but, as it has in the past, it may well take the water levels right down to datum within the next few years.

Aside from the economic loss, the loss in carrying capacity in itself can be a very serious matter. In any future emergencies the defense of this country will require every last ton of iron ore that can be carried down the Great Lakes. None of us wants to see another conflict but if it should come none of us would want to see any shortage in the munitions of war because ships could not carry full loads of iron ore.

Many of the present iron ore carriers are approaching obsolescence and should be replaced during the next few years. Experience during the recent building program has shown that replacements will be made with ships averaging at least 650 feet in length, with a beam of about 70 feet, and with authorized midsummer draft of approximately 25.5 feet. As the old vessels pass out of the picture and the new and larger vessels come into use, the potential loss of carrying capacity for the fleet as a whole will become greater unless the connecting channels are deepened.

It should also be mentioned that 16 new, large vessels, including the longest ship now in operation on the Great Lakes, have been added recently to the Canadian fleet. These ships, too, must be suffering a loss in carrying capacity in the present connecting channels but we do not presume to present any figures on them. We do submit, however, that they should be given consideration because they will augment the fleet of United States ships in any future emergency, just as they have in the past.

In 1928 the Board of Engineers for Rivers and Harbors said:

> The Great Lakes and their connecting waterways are the most important unit of inland water transportation in the world. Savings in the cost of such transportation affect either directly or indirectly the whole population of the United

States. Conservative estimates show that the entire amount spent by the United States for new work and maintenance upon channels and harbors of the Great Lakes is returned annually as savings in reduced transportation costs.

That statement, in all its parts, is as true today as it was 27 years ago.

We believe that the constantly increasing traffic on the Great Lakes, which can be carried more economically in larger vessels, and the necessity of providing now for an all-out effort in times of national emergency, require further improvements in the connecting channels. We also believe that the recommendations of the Corps of Engineers for deepening so as to provide a safe draft of 25.5 feet are justified now and will be adequate for many years to come. To accomplish the recommended work will take 5 years at the very minimum. So we urge Congress to approve the proposed project now.

Thank you.

Mr. BLATNIK. Admiral, we thank you for your concise but very complete statement in bringing us up to date on the urgency of improving the channel depths to accommodate the newer types of lake carriers now emerging in the Great Lakes.

Admiral, I am told that our lake cargo carriers 700 feet long are the longest and fastest cargo boats in the world. Is that statement correct?

Admiral SPENCER. It is correct as far as the length is concerned. I am unable to answer about the speed, but I do not think there is anything that goes much faster than they do in the line of cargo vessels. Of course, passenger vessels do. The new ones run about 18 miles an hour.

Mr. BLATNIK. Admiral, when was the last channel improvement carried out? When was the last major improvement with regard to deepening the channels?

Admiral SPENCER. I have that here. In 1929 it was being considered by Congress. I am not sure whether it passed that year or the following year, but it was about 1929.

Mr. BLATNIK. Over 25 years ago?

Admiral SPENCER. Yes, sir.

Mr. BLATNIK. And just in the last 10 years we have seen the advent of these new, large, modern carriers that are required for the movement of this cargo?

Admiral SPENCER. Yes, sir.

Mr. BLATNIK. The improvement has been carried on over a period of 77 years by the Government.

Admiral, that is a very complete and convincing statement and I thank you.

Mr. DONDERO. Mr. Chairman, I have a question.

Mr. BLATNIK. Yes, Mr. Dondero.

Mr. DONDERO. Are there any more whalebacks on the Great Lakes?

Admiral SPENCER. There is just one under the Canadian flag, which is used as a barge.

Mr. DONDERO. In addition to that, how much water does the average pilot or captain of a ship on the Great Lakes require under his keel before he believes traversing any part of the Great Lakes is safe?

Admiral SPENCER. That is pretty hard to answer, Mr. Dondero, because it varies.

Mr. DONDERO. I can tell you what the testimony was before this committee on the St. Lawrence seaway. It was 2 feet.

Admiral SPENCER. As I mentioned here, in figuring the drafts for the connecting channels, we allowed 30 inches, or 2½ feet. Going up a river like the river at Cleveland or the Buffalo River at Buffalo, where they have to proceed very slowly on account of the bends, they will go with less than that because they are proceeding so slowly that if they get on they can get off again. The slower they go the less squat there is on the vessels, and the less water it needs.

Mr. DONDERO. I should have asked this question of Colonel Nauman: Do you anticipate any difficulty whatever with the Canadian Government in reference to obtaining the right-of-way wherever we are changing the course of the channel of the Great Lakes, like we are at the southeast bend in Lake St. Clair?

Admiral SPENCER. Do you want me to try to answer that?

Mr. DONDERO. If you know.

Admiral SPENCER. Yes, sir. I cannot answer as far as that new land for southeast bend is concerned. I understand that the Corps of Engineers has had some conversation with the Canadian people and there is a possibility that that may be made available. As far as anything for the existing channels is concerned, there will be no difficulty with the Canadians.

Mr. DONDERO. Colonel Nauman, is there anything in your thinking or your knowledge that would lead you to believe that there will be any difficulty with the Canadian Government in obtaining the rights-of-way wherever we are changing the course of the international boundary, or the connecting channels of the lakes?

Colonel NAUMAN. No, sir. And I might add that this has been referred to our State Department and subsequently from the State Department to the Canadian Government; and receipt has been acknowledged and gratitude has been expressed for the Canadians having been consulted prior to the start of testimony on this project.

Mr. DONDERO. Has any answer been received from the International Boundary Commission between Canada and the United States, which generally governs the international boundary waters between the two countries?

Colonel NAUMAN. Sir, I do not believe it has insofar as it affects this project.

Mr. DONDERO. But the Canadian Government has acknowledged it and you do not anticipate any difficulty?

Colonel NAUMAN. Yes, sir. That is right.

Mr. DONDERO. That is all.

Mr. MACHROWICZ. Admiral, you referred in your statement to the fact that a great part of this fleet is becoming obsolescent. Can you tell us how large the Great Lakes cargo fleet is?

Admiral SPENCER. We have pretty close to 95 percent of the bulk carriers in our organization.

Mr. DONDERO. How many?

Admiral SPENCER. Ninety-five percent. And they have a gross registered tonnage of 2,173,000. So that it would be somewhere around 3 million.

Mr. MACHROWICZ. Can you estimate about what percentage of that fleet is more than 40 years old? I notice in the report of the Corps of Engineers the statement is made that over two-thirds are more than 40 years old.

Admiral SPENCER. That could be true because most of the ships that are not in the association are older ships.

Mr. MACHROWICZ. So that about two-thirds are obsolescent or nearing the obsolescent age and will be replaced by newer and larger ships, requiring the 25.5-foot draft?

Admiral SPENCER. I can only speak for the association, sir. I did not quote any figures here and I have forgotten what it is now.

Mr. MACHROWICZ. Would you say the statement that approximately two-thirds of that fleet would be more than 40 years old, would be substantially correct?

Admiral SPENCER. Yes, sir. I think that would be pretty close to it.

Mr. MACHROWICZ. And most of them will be replaced by ships requiring at least a 25.5-foot clearance?

Admiral SPENCER. I can only go by the experience during the last big building program which, incidentally, was the biggest building program that they ever had on the lakes, when we built 25 vessels under the United States flag and they were all big vessels.

Mr. MACHROWICZ. Requiring 25.5-foot draft?

Admiral SPENCER. All but two of those, I believe.

Mr. MACHROWICZ. That is all.

Mr. BLATNIK. Are there any further questions?

(No response.)

Mr. BLATNIK. Thank you very much, Admiral.

Admiral SPENCER. Thank you, sir.

Mr. BLATNIK. Dr. Marvin A. Rapp, director of the port of Buffalo.

## STATEMENT OF MARVIN A. RAPP, CONSULTANT TO THE PORT DIVISION, CITY OF BUFFALO

Dr. RAPP. My name is Marvin A. Rapp. I am administrative head of the port of Buffalo. My technical designation is consultant to the port division of the city of Buffalo. I am speaking for that division and I have already relayed this statement to the director of the Oswego Port Authority, and it has their concurrence.

Before I begin the actual reading of my prepared statement, I would like to make a few remarks in the form of addenda on several statements made by the members of this committee this morning.

Mr. Chairman, I think it is significant that in addition to pointing out that the Soo Canal was constructed 100 years ago, I would like to state that yesterday was the actual birthday, June 28, of the construction of that most famous canal. May I say that in addition to the comparison of tonnage which you made in saying that it has a greater tonnage than the Panama and the Suez Canals, the statement is even broader than that. You can add the tonnages of the canals of Manchester in England, as well as the Kiel Canal, between the North Sea and the Baltic Sea. The tonnage through the Soo Canal is even greater than those.

That brings me to Mr. Dondero's most interesting statement on the Honorable Henry Clay. May I add to his statement that according to legend, but not necessarily according to history, Mr. Clay is reputed to have said, "Go ahead and build the Soo Canal, and when it is finished the only result will be to enable the Ojibway savages of that wilderness to paddle unimpeded out of Lake Superior to the

Lake Huron region and make faces at the white men who were so silly as to construct that canal."

Mr. DONDERO. That ought to be put in newsprint for the news reporters present.

Dr. RAPP. There was a statement also made on the cost of the shipment of ore.

Mr. DONDERO. May I add, Doctor, at that juncture, that the statements of Henry Clay are almost parallel with the statements made by Proctor Knott in reference to the great city of Duluth, Minn., back in 1871. Proctor Knott was a Member of Congress from Kentucky and everything he said in ridicule of that great city of Duluth became true in fact.

Dr. RAPP. The reference I was going to make with reference to the cheapness of the shipment through the Great Lakes is that it has been said, and I believe on good authority, that it costs less to ship a ton of iron ore from Duluth to dockside in Buffalo than it would cost at the going rate in my neighborhood to shovel a ton of coal from the curb outside of my house into the cellar for use as fuel in the winter.

The economic future of the Niagara frontier, like its past and present, depends largely upon the water lifeline of the Great Lakes from Chicago and Duluth to the eastern end of Lake Erie. The creation of the Sault Ste. Marie Canal 100 years ago almost to this day, and the deepening of the St. Clair Flats over a hundred years ago, helped to make the Niagara frontier the largest United States inland port in value of tonnage, handling approximately 20 million tons a year and amounting to more than a billion dollars annually.

The ore and grain which feed the steel and flour mills of the Niagara frontier come through the Great Lakes connecting channels at the yearly rate of 5 million tons of ore, 7 million tons of grain, making the Niagara frontier the largest grain- and flour-milling center in the world and one of the largest steel centers of the United States. Thirty percent of the economy of Buffalo and the Niagara frontier depends upon steel and its allied products.

The dredging of the connecting channels is necessary to bring the lakes to a level of commercial efficiency and effectiveness commensurate with the expanding economy of the heartland region generally and with the Niagara frontier particularly.

The predicted phenomenal population growth in the next 25 years in the Great Lakes area, the unprecedented industrial expansion planned, and the technological improvements in the beneficiation process releasing billions of tons of taconite ore, is creating an economic revolution in this area.

A month ago the port division of the city of Buffalo completed a 6-month economic study of its port as it would be affected by the St. Lawrence seaway, New York State Tbruway, new power development, and the increasing size of the lake fleet. The study cost $50,000. The conclusions were optimistic, pointing to an expanding economy if certain conditions were met. One was deeper water in our outer harbor, another deeper water in the connecting channels. This is what the report said on the latter phase:

> The port of Buffalo's future for lake trade depends, to a great degree, on the depths available in the so-called connecting channels * * *. The increased construction cost of the greater 27-foot depth has been estimated at $109,027,000

by the Great Lakes division of the Corps of Engineers. The deepening also would increase maintenance costs by about $200,000 a year.

Until the connecting channels are deepened, fully laden seaway vessels will not be able to proceed as far uplake as Detroit. At first glance, it would therefore appear that it might not be in the best interests of the port of Buffalo to push for the 27-foot deepening of the connecting channels. However, most of the new vessels in the lakes trades are designed to operate at loaded drafts of at least 25 feet. One of the largest carriers, on its initial voyage in the fall of 1952, was able to carry only 80 percent of its full cargo capacity due to lack of depth in the connecting channels. We believe this position is correct and that the port should continue its efforts, second only to first obtaining the necessary appropriations for deepening its own outer harbor to 27 feet. The full advantage of deepening the outer harbor to 27 feet cannot be obtained until both the seaway and the connecting channels are likewise ready for traffic requiring 27 feet depth.

With faith in the future and the hope of deeper water in its harbor and in the connecting channels, the Niagara Frontier Port Authority, based on the findings of its study, intends eventually to spend almost $27 million on port improvement and expansion. The initial phase calls for an expenditure of $5½ million.

Recently, after 25 years of failure, the Niagara frontier obtained approval for a port authority by local and State legislatures and executives. Certain additional approvals are necessary before the authority becomes a reality. It is hoped that all of these will be realized in due time. With this strong agency in control it is hoped that new energy will be infused into the commercial and the industrial machine of the Niagara frontier. Already there is new confidence abroad in the frontier. The new economic resurgence is mostly connected with waterborne commerce. The Ford stamping plant, already one of the largest in the United States, plans a several million dollar expansion; Bethlehm Steel is contemplating expansion of their local plant, already the second largest of their corporation. Republic Steel is planning modernization and expansion amounting to millions of dollars. Recently the corporation offered to buy land and prepare it for industrial use in an area of the waterfront that had lain idle since Ellicott first laid out Buffalo in the 1800's. Wickwire Steel, Niagara Mohawk, all have expansion programs amounting to millions of dollars. Most of these industries depend on waterborne commerce—efficient waterborne commerce. Efficiency depends on deeper draft vessels.

Some of the present and most of the projected lake fleet are or will be outdrafting the controlling depths now obtaining and authorized in these channels.

Because of these considerations, the port division has favored the deepening of these channels. It participated as a proponent in the Detroit hearings several years ago, referred to earlier this morning. The following is a statement issued by the port division upon receipt of the United States Army Corps of Engineers' notice concerning a public hearing on the subject:

Re Item No. 44, C. C. P., October 27, 1953, United States Army, Corps of Engineers—Notice of public hearing regarding further improvement of the Great Lakes connecting water, etc.

To the COMMITTEE ON LEGISLATION.

GENTLEMEN: The above-described item, referred to the division of the port for comment by city clerk's communication of October 29, 1953, has been reviewed as requested, and comments are herewith furnished as follows:

(a) The Detroit district of the United States Army Corps of Engineers has been authorized by Congress to survey the Great Lakes connecting waters to determine the feasibility of deepening them to 27 feet. If he is to report favorably he must find that the needs of navigation are such as to justify such deepening; that is,

that there will be benefit at least equal to the cost involved. The district engineer at Detroit is holding a public hearing there November 17 to aid him in his determination, and all interested parties are invited to attend.

(*b*) The city of Buffalo is certainly such an interested party. Present authorized depths in Buffalo Harbor are 22 and 23 feet in the inner harbor (Buffalo River and Ship Canal) and 23 and 25 feet in the outer harbor. These depths have not yet been achieved for lack of appropriations to complete authorized projects. When they are complete, they will in all probability be inadequate to the needs of prospective navigation, because for some time the trend has been to build larger vessels. Much of the present Great Lakes fleet is quite old, and as the present smaller vessels are retired, they are replaced with larger, deeper draft, faster vessels. The economies offered by these modern vessels cannot be achieved unless they call at harbors capable of accommodating them. It is therefore of importance to us that Buffalo Harbor be capable of receiving such vessels.

(*c*) Further improvements at Buffalo Harbor and other Lake Erie ports are dependent, however, on depths in the so-called connecting waters (St. Mary's and St. Clair Rivers, and Lake St. Clair) since most commerce destined for Buffalo passes through these connecting waters. This is the control point which must be improved, if further improvements are some day to be justified downlake.

(*d*) We appear to be entering a low-water cycle, this being the first year in 10 that lake levels have shown a downward trend. There will, therefore, undoubtedly be increasing insistence on deeper channels in the immediate years ahead. Deepening of the connecting waters is many years away, since it is just being surveyed now, and must be reviewed, authorized by Congress, provided for by appropriation and finally built, before its benefits can be achieved.

(*e*) In the long-range view, Buffalo should therefore support the proponents of improvement of Great Lakes connecting waters. It is therefore planned to attend the hearing on November 17, and record the city as in favor of the proposed project, for the reasons generally outlined above.

Respectfully submitted.

DIVISION OF THE PORT OF BUFFALO.

Public opinion on the frontier, if it can be judged by the newspapers, supports the proposed connecting channel legislation. The following is a quote from the editorial page of the Buffalo Evening News, January 24, 1955:

When Congress last year approved the St. Lawrence seaway, it was plain that this was only the first of several decisions and projects affecting Great Lakes commerce that would have to follow in train.

With the seaway designed for a 27-foot channel, the next logical necessity is to make that the controlling depth for all major Great Lakes channels—and harbors. Now the Army's Board of Engineers for Rivers and Harbors has taken the first of these steps—approval of a $109 million plan to deepen all the connecting channels in the Great Lakes to 27 feet. The work in the United States channels will take 5 years to complete.

But first an authorization has to be put through Congress and then the appropriations have to be obtained. And even when the channel deepening is underway, there will remain the equally essential additional step of getting the major Great Lakes harbors—Buffalo's included—in shape to handle the 27-foot draft vessels by the time the seaway is ready.

The Army engineers are still studying the harbor improvements that will be needed. Buffalo area interests, while working with the other port cities to expedite the channel deepening, will also need to join them in pressing for as prompt a congressional authorization as possible for the necessary harbor work. This is an obvious must for Buffalo that need not wait on detailed decisions as to the location of piers and the planning of other port improvements. The sooner we can get the ball rolling for the required authorizations and appropriations, the better will be our chances of having a harbor that can handle seaway commerce when the first deep-draft ships come through the locks.

Just as the channel deepening is necessary for the continuing growth of the Great Lakes area, the deepening of the channels is necessary to complete the St. Lawrence seaway. The greatness of the St. Lawrence seaway is the wedding of all of the Great Lakes to the oceans of the world. The removal of the St. Lawrence barriers without the removal

of the Great Lakes barriers will prevent the realization of the full potential of the waterway. The Niagara Frontier will be the first United States port of call (in Lake Erie) for inbound overseas shipments and the last United States port of call (in Lake Erie) for outbound overseas shipments. The Niagara Frontier feels it will prosper with the whole area. What is good for the Great Lakes area and the United States and Canada will most assuredly be good for the Niagara Frontier.

I thank you for the privilege of this hearing.

Mr. BLATNIK. Thank you, Dr. Rapp. Are there any other questions?

Mr. DONDERO. Just one, Mr. Chairman.

Do you agree with the statement made by the Army engineers that because of the longer and wider and deeper draft lake ships which are now already constructed, and those under construction, that it would be necessary to deepen the channels of the Great Lakes regardless of the St. Lawrence seaway?

Dr. RAPP. I most assuredly do, sir.

Mr. BLATNIK. The engineers' report further reveals, and you testified along the same line, as to the potential traffic that the volume of this enormous amount of traffic on the Great Lakes is expected to increase by about 37 percent, and I should assume that the creation of your port authority and the activity of your municipality and of your State legislature indicates they, too, are convinced that the future growth and expansion of Great Lakes traffic justifies not only the investment by your State and local governmental units, but also an obligational of the Federal Government.

Dr. RAPP. Yes, sir; we believe that statement to be true.

Mr. BLATNIK. To improve these channels so as to accommodate the modern ships now appearing on the Great Lakes.

Dr. RAPP. Yes, sir.

Mr. DONDERO. One other observation and maybe Dr. Rapp will agree with me. The $109 million that is estimated as the cost of deepening the channels of the Great Lakes may seem large. Yet how small it is compared with what we are doing over on the floor of the House of Representatives this afternoon. We are going to send the cost of 32 deepenings of the channels of the Great Lakes to Europe in one bill or $3½ billion.

Mr. BLATNIK. For a 1-year period.

Mr. DONDERO. For 1 year.

Mr. BLATNIK. Thank you very much, Dr. Rapp.

Dr. RAPP. Thank you.

Mr. BLATNIK. We have as our next witness Sterling St. John, Jr., the executive director of the port of Detroit Commission.

## STATEMENT OF STERLING ST. JOHN, JR., EXECUTIVE DIRECTOR OF THE PORT OF DETROIT COMMISSION

Mr. ST. JOHN. Mr. Chairman, I also have a statement of the Detroit Board of Commerce which I would like to submit for the record, with your permission.

Mr. BLATNIK. Without objection, it is so ordered.

(The statement of the Detroit Board of Commerce is as follows:)

STATEMENT OF THE DETROIT BOARD OF COMMERCE

The Detroit Board of Commerce represents some 3,900 businesses and industries in the Detroit metropolitan area. Transportation of all types is vital to this industrial area. Detroit is north of most of the transcontinental rail lines and has long been dependent upon water transportation for substantial quantities of raw materials. Of late years an increasing volume of Detroit's manufactured products have been floated away to lake ports and overseas.

In 1952 Knappen, Tippetts, Abbett & McCarthy, a New York consulting firm, prepared for Wayne County a port economic survey for the Detroit region. Referring to page 8, volume I, of this survey, we find that the total tonnage at the port of Detroit in 1950 was 22,944,000 tons. The survey estimates that even without the St. Lawrence seaway this total will reach 31 million tons in 1960 and 36 million tons in 1965. Preliminary but unofficial figures for 1954 show tonnage figures to be well above 25 million tons. The overseas import-export tonnage in 1950 of 30,000 tons grew to an estimated 85,000 tons by 1954.

The port of Detroit is midway between two of the most important connecting channels involved in this hearing. There is a 21-foot upbound channel and 25-foot downbound channel in the lower Detroit River. Thus, when the St. Lawrence seaway is built, any vessel drawing over 21 feet will not be able to reach Detroit from Lake Erie. Detroit is in the center of the largest steel-using area in the world. This area needs iron ore, coal, limestone, iron and steel products, much of which is floated into Detroit. Authorities agree iron ore supply from the upper Lakes States will have to be supplemented in large part with ore from outside the boundaries of the United States. When the seaway is completed this will be floated through the seaway, but in the meantime will be brought to Prescott, Ontario, and transshipped via Lake Ontario. Therefore, it becomes imperative the Great Lakes connecting channels be deepened to handle the increased bulk cargo traffic from this new direction.

Anything that can be done to deepen the channels tends to make for more efficient and less costly water transportation. Vessels carrying heavy bulk commodities are definitely limited by the depth of the channels in the Detroit River, Lake St. Clair, and the St. Clair River. Therefore, determination of the value of deepening these channels becomes a matter of balancing the vast benefits to our waterborne commerce as compared to the cost. Testimony presented by the Corps of Engineers, United States Army, at this hearing gives ample proof that the anticipated transportation savings to Great Lakes commerce economically justify the cost of this channel improvement.

Mr. BLATNIK. You may proceed, Mr. St. John.

Mr. ST. JOHN. My name is Sterling St. John, Jr. I am executive director of the Port of Detroit Commission. This commission was created in 1933 under the Michigan Port District Act of 1925. The Detroit Port District is coterminous with Wayne County and includes such commercial and industrial waterfront communities as Dearborn, Ecorse, River Rouge, Riverview, Wyandotte, and Trenton, in addition to Detroit proper.

The Port of Detroit Commission wishes to have recorded its unqualified support of action to deepen and improve the channels in St. Mary's River, Straits of Mackinac, St. Clair River, Lake St. Clair, and Detroit River, to a controlling depth of 27 feet.

Despite its present draft restrictions of 25 feet downbound and 21 feet upbound, the Detroit River is, by far, the heaviest tonnaged waterway in the world. Compilations of the Corps of Engineers show that more than 140 million short tons of foreign and domestic merchandise carried in some 22,900 vessel passages, each year utilize the Detroit River to reach their destinations.

For 1953, the Port District of Detroit shared in this waterborne traffic in the amount of more than 25 million tons; thus ranking Detroit among the top tonnage ports of the country.

Not only will the deepening of the channels connecting the Great Lakes permit the utilization of larger lake carriers with corresponding

transportation savings for the raw materials of industry, but for the ocean freighters as well, the economies of larger vessels will be available to Detroit and the upper Lake ports.

In a recent economic study of the Detroit port area, it was concluded that within 10 years the ocean commerce of the port would increase tenfold to a million tons a year with transportation savings of approximately $14 million to shippers. Aside from these savings, new wealth brought into the Detroit area by this added tonnage is estimated at $27 million.

These benefits will extend far beyond the immediate port limits of Detroit, as the industries and people of the hinterland will gain in direct and indirect income in proportion to their participation in this traffic. Both the Port of Detroit Commission and the communities within the port district have long been identified with support for the St. Lawrence seaway. With a metropolitan population of 3.5 million and one of the largest industrial concentrations in the country, the Detroit area depends to a vital degree upon the water transport of its commerce to all parts of the free world.

Detailed economic justification for the connecting channels project has already been presented to this committee by the Corps of Engineers. The Port of Detroit Commission concurs in these findings and respectfully requests that full and favorable consideration be given to the connecting channels project by this committee and this Congress.

Mr. BLATNIK. Thank you very much, Mr. St. John.

I recognize the gentleman from Michigan, Mr. Machrowicz.

Mr. MACHROWICZ. I would like to welcome Mr. St. John, the executive director of the Port of Detroit Commission, to these hearings, and assure him he is most welcome here.

Mr. ST. JOHN. Thank you very much, Congressman Machrowicz.

Mr. DONDERO. I was one of the first to welcome you here before this committee, because we are rather sympathetic to the problems before us.

Could you not very well apply your statement as to the anticipated benefits to the city of Detroit to practically every Great Lakes port?

Mr. ST. JOHN. Most certainly, Mr. Dondero.

Mr. DONDERO. It would apply to Duluth, Cleveland, and Chicago, and other places as well.

Mr. ST. JOHN. The added wealth that will be brought in by the deepening of these channels, with the consequent lowering of transportation costs, will accrue to all of the Great Lakes areas.

Mr. DONDERO. The figure you gave of 21,900 vessel passages for the port of Detroit alone is an amazing figure and should indicate to the rest of the country the great importance of the Great Lakes waterborne commerce to the national welfare.

Mr. ST. JOHN. That is right, sir.

Mr. BLATNIK. Thank you very much, Mr. St. John.

Our next witness is Mr. Oliver A. Reynolds, vice president of the Cleveland Chamber of Commerce.

Mr. Reynolds, do you have a prepared statement?

Mr. REYNOLDS. Yes, sir.

## STATEMENT OF OLIVER A. REYNOLDS, VICE PRESIDENT, CLEVELAND CHAMBER OF COMMERCE

Mr. REYNOLDS. My name is Oliver A. Reynolds and I am vice president of the Cleveland Chamber of Commerce, Cleveland, Ohio.

I appear before you in support of legislation which would make it possible to deepen the Great Lakes connecting channels in the interest of commerce and navigation.

Cleveland is the headquarters for a majority of the Great Lakes shipping companies. During the national emergency in recent years, the Federal Government requested that lake shipping companies enlarge their fleets in order to transport more raw materials to assist in the national defense effort. New, large lake vessels built at that time cannot carry full cargoes of raw materials in periods of low water levels on the Great Lakes; and low water periods occur every few years. If the lake level should be low during a national emergency, the loss of carrying capacity might be very serious to the Nation because of the important part that these raw material carriers play in the Great Lakes transportation picture.

In addition to the movement of raw materials between Great Lakes ports, Cleveland is deeply interested in seeing the connecting channels deepened in order that cargo moving between lake ports and foreign countries might be transported in the largest size vessels which will be able to enter Lake Erie when the St. Lawrence seaway is completed. If all vessels traveling the St. Lawrence seaway are able to move freely from Lake Erie through to Lake Michigan ports, these vessels would be available to make calls at all Great Lakes ports handling cargo in the overseas service. Deeper connecting channels could mean a substantial increase in the total amount of cargo to move over the St. Lawrence seaway and could result in many more vessels calling at Great Lakes ports than would be the case if deep-draft vessels could travel only as far as Lake Erie ports.

We are convinced that unless the connecting channels are deepened, both interlake and foreign shipping will suffer and the general development of the entire Great Lakes area will be retarded.

We have been advised that a period of at least 4 full working seasons, of 8 months, after the date of initial appropriation of construction funds, would be required to complete this project if maximum efficiency of operation is to be realized. Therefore, unless deepening work on the connecting channels is authorized at this session of Congress, the through lake channels will not be ready for deep-draft vessels until long after the St. Lawrence seaway is completed to Lake Erie. Cleveland would like to see all Great Lakes ports enjoy the same water-transportation opportunities simultaneously, and we hope that the Public Works Committee will authorize this project so that funds may be requested of Congress and made available in time to start construction in 1956. The Cleveland Chamber of Commerce appreciates this opportunity to have me appear before your committee in support of this very important improvement to the connecting channels of the Great Lakes transportation system.

Mr. BLATNIK. Thank you very much, Mr. Reynolds. Will you extend to the Cleveland Chamber of Commerce our appreciation of your support of this great project and for your participation at this hearing?

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Mr. REYNOLDS. Yes, sir. I want you to know that Cleveland proposes to stay right in the picture and support this connecting channel until it is completed. We consider it one of the most important parts of this waterway, not only for the opportunity it gives American vessels, but foreign vessels also. We feel that unless the entire job is done, that none of the ports on the Great Lakes will get the full value out of it.

We feel that Michigan ports and all of the other ports on the Great Lakes are entitled to the same consideration that we got in Cleveland.

I appreciate the opportunity of appearing here.

Mr. BLATNIK. Mr. Reynolds, coming from the westernmost part of the Great Lakes, Duluth and Lake Superior, I can say that there was some apprehension earlier that perhaps Cleveland and Detroit would be left out of this great inland body of water. We have been most pleased and most appreciative for the fine support that we are getting from you people in Cleveland.

Mr. REYNOLDS. We appreciate the opportunity to work with you gentlemen. I might say, while I speak for Cleveland today, the views all over Lake Erie are the same. There is no interest that I know of that is not for this improvement being completed at the earliest date. We are certainly in agreement on the Great Lakes in this movement.

Mr. BLATNIK. Thank you. We had a very fine statement from Dr. Rapp, representing the easterly end of it.

Mr. REYNOLDS. We all feel the same way about it.

Mr. BLATNIK. Are there any other questions?

(No response.)

Mr. BLATNIK. Thank you very much, Mr. Reynolds.

Are there any other witnesses who desire to be heard this afternoon?

I should like to call the attention of the committee to the fact that the House will be in session at 10 o'clock tomorrow morning.

Mr. MACHROWICZ. I was going to bring up that question and ask whether or not we could meet earlier tomorrow to hear the remaining witnesses.

Mr. BLATNIK. We have two witnesses who can present their testimony in a brief summary statement if the members can meet by 9:30. Then we can complete it by 10 or shortly thereafter tomorrow.

Mr. DONDERO. I am agreeable.

Mr. BLATNIK. We have a colleague of ours who is here, Mr. William E. Minshall.

Mr. Minshall, we are very happy to have you here.

## STATEMENT OF HON. WILLIAM E. MINSHALL, MEMBER OF CONGRESS FROM THE STATE OF OHIO

Mr. MINSHALL. Mr. Chairman, I have this statement. Rather than take up any of your time this afternoon, I would like to file my statement with the committee. I am sure you are familiar with the problem and my statement sets forth in great detail my views.

Mr. BLATNIK. Without objection it is so ordered.

(The prepared statement of Mr. Minshall is as follows:)

STATEMENT OF HON. WILLIAM E. MINSHALL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OHIO

Mr. Chairman, on January 6 of this year, the first day of the present 84th Congress, our colleague, Alvin O'Konski, of Wisconsin, introduced H. R. 158, a bill to authorize the modification of the existing projects for the Great Lakes connecting channels above Lake Erie.

On that same day, January 6, like bills were introduced by Congressman Machrowicz and the distinguished former chairman of this committee, Congressman George A. Dondero, of Michigan. Since then other Members of Congress have introduced similar bills—all for one purpose alone: To permit oceangoing vessels to continue their voyages from Lake Erie to Lakes Huron, Michigan and Superior.

I mention this background, Mr. Chairman, only because I believe the record should show that the widespread interest in the legislation you are considering today actually began before the first day of this session and has been picking up even more momentum as this session has progressed.

On January 20, I appeared before the Board of Engineers for Rivers and Harbors, urging the Board to approve the report of the Corps of Engineers on deepening the Great Lakes connecting channels. I cannot begin to recall how many Congressmen and Senators were represented before the Board of Engineers at that time, although I do remember that not one Member of Congress appeared in opposition to this project.

The Board did approve the report and I assume that report will be a part of this record. But I mention this testimony and report as further evidence of the continued widespread interest and approval of the project before the committee here today.

The completion of the St. Lawrence Seaway is of paramount importance to the people of my 23rd Congressional District, the people of Cleveland, and in general the people of the entire Midwest. Any specific project leading to the ultimate completion of the seaway is therefore also of paramount importance to these same people.

Just a week ago, on June 23, the tanker M/S *Nady* delivered the first boatload of crude sperm oil ever imported into Port Cleveland. The oil was produced in the Antarctic on board giant floating factory whaling ships, and then shipped through the St. Lawrence seaway as an experiment of one Cleveland company to learn the advantages of shipload directly to Cleveland.

The experiment worked and proved many advantages of through shipload delivery.

Now the situation resolves itself as to whether or not big ships of ocean size can continue their journeys through the St. Lawrence into the five Great Lakes and supply an even greater American market.

These large ships can continue past Lake Erie to great ports of this Nation such as Duluth and Superior, Chicago, Detroit, Milwaukee, and Port Huron, only a bill such as the O'Konski bill appropriates the money to deepen the channels in the St. Marys River, the St. Clair River, Lake St. Clair, and the Detroit River.

I urge this committee to favorably report the O'Konski bill as expeditiously as possible so that we can enact this legislation, secure the necessary appropriations, and make the big "if" before you today a certainty.

Thank you, Mr. Chairman, for allowing me the time I have taken.

Mr. BLATNIK. Let me say that we appreciate the diligence of our colleague in remaining here all this time.

Mr. MACHROWICZ. You are here in support of this?

Mr. MINSHALL. I am in support of the seaway project, and although I have none of the actual support of the seaway, it is in my district and it means a lot to my district.

Mr. MACHROWICZ. You are supporting the connecting channels?

Mr. MINSHALL. Yes, sir.

Mr. BLATNIK. Thank you very much, Congressman. Your statement has been inserted.

Mr. MINSHALL. Thank you very much.

Mr. BLATNIK. There being no further witnesses, the committee is adjourned and we will meet at 9:30 tomorrow morning.

(Whereupon, at 3 p. m. the subcommittee adjourned until 9:30 a. m. the following day, Thursday, June 30, 1955.)

# GREAT LAKES CONNECTING CHANNELS

**THURSDAY, JUNE 30, 1955**

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON RIVERS AND HARBORS OF THE
COMMITTEE ON PUBLIC WORKS,
*Washington, D. C.*

The subcommittee met, pursuant to adjournment, at 9:40 a. m., in room 1302, New House Office Building, Hon. John A. Blatnik (chairman of the subcommittee) presiding.

Mr. BLATNIK. The meeting will please come to order.

We shall resume hearings on bills relating to the deepening of the Great Lakes connecting channels, H. R. 2552 and H. R. 660, and several other related and similar measures.

We have present as our first witness Congressman Charles A. Vanik, from Ohio.

Mr. Vanik, will you take the chair, please?

Congressman Vanik is the author of H. R. 4110, a measure identical to several others, providing for deepening the Great Lakes channels.

I am very glad to have you here and appreciate your taking the time out from what I know to be a very heavy schedule, to be here to plead on behalf of the Great Lakes development.

## STATEMENT OF HON. CHARLES A. VANIK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OHIO

Mr. VANIK. Mr. Chairman and members of the committee, I want to say at the outset I have no pride of authorship excepting with respect to the legislation. I wanted to indicate in submitting a bill similar to that submitted by the chairman that I was in sympathy with the legislation, and I wanted to manifest my sympathy by submitting a bill to the Congress in that form.

I will identify myself for the record. My name is Charles A. Vanik and I represent the 21st District of Ohio, which is principally the east side of Cleveland. At a time like this one Member of Congress can tell another Member of Congress about the limitations of his district. I represent the east side of Cleveland, which has some of its principal suburbs.

My purpose here today is to urge the enactment of legislation to deepen the connecting channels of the Great Lakes and I therefore speak in behalf and in support of the legislation which has been introduced by the committee chairman.

The economy of America is vitally interwoven with the free movement of shipping on the Great Lakes. The lifeblood of America travels through many commercial arteries and capillaries, but in perspective, the connecting channels of the Great Lakes serve as an aorta—delivering volume commerce to the heart of industrial produc-

tion. The hungry blast furnaces of my community demand tremendous tonnage of iron ore and limestone. These tremendous cargoes come to us principally from the upper lakes—but the St. Lawrence seaway facilities will soon permit them to come from both directions, from the east abroad as well as from the west.

The Great Lakes channels are therefore an extension of the St. Lawrence seaway inasmuch as they bring seaway commerce to the upper lakes. When the opportunities of the St. Lawrence seaway can be extended to these vast reaches of America in deepending the connecting channels, it is an opportunity which America cannot afford to bypass.

The national defense of our Nation demands the deepening of these connecting channels of the Great Lakes. In the event of a national emergency, the ore fields of the upper lakes would remain as the only source of raw materials in steel production. It may well be that survival itself will depend upon the utilization of full cargo tonnage of Great Lakes transportation. In order to keep the movement of large Great Lakes cargoes at an efficient level, the cargoes must of necessity be large. They are principally raw material cargoes. The ships must thereby be large and of deep draft. The proposed 27-foot channels will accommodate the full practicable draft of foreseeable shipping.

The deepening of the Great Lakes channels is essential to the progress and development of the industrial heart of America—a region which includes over one-third of the population of America. This improvement work should commence without delay so that it can be completed in time, synchronized with the St. Lawrence seaway project to reach Lake Erie. This great work is important not only to Cleveland, Detroit, and Chicago, but to the entire Nation as well. We in Cleveland are doing what we can at the local level to prepare for the St. Lawrence seaway and the improvement of the upper channels of the Great Lakes. Our Cleveland City Council has just last Monday passed an $8 million bond issue to provide for lake front dockage facilities for the commerce we expect to reach our city.

This is only a small part of what has already been spent by our local government in endeavoring to anticipate the shipping facilities which we fell will be required because of the Great Lakes seaway and the great amount of commerce which we expect to continue developing with the deepening of the channels to the upper lakes.

Thank you very much, Mr. Chairman and members of the committee.

Mr. BLATNIK. Thank you very much. Are there any questions? (No response.)

Mr. BLATNIK. We will insert your complete statement in the record.

The next witness is Dr. N. R. Danielian. Dr. Danielian is president of the Great Lakes-St. Lawrence Association.

Mr. DONDERO. Mr. Chairman, our distinguished witness, Dr. Danielian, has made the connecting channels of the Great Lakes and the seaway a part of his life for a good many years. It is possible he could just give us an oral statement and put his prepared statement in the record, in view of the fact that we will be in session in the House in 15 minutes.

## STATEMENT OF DR. N. R. DANIELIAN, PRESIDENT, GREAT LAKES-ST. LAWRENCE ASSOCIATION

Dr. DANIELIAN. I do not propose to read that extensive brochure I have given you, Mr. Chairman.

Mr. DONDERO. I thought it would be easier for you and it would save the time of the committee.

Dr. DANIELIAN. I have a 5-minute statement which I would like to present to the committee.

Before I start into my statement, Mr. Chairman, I would like to make two comments. First I would like to express pleasure in appearing before this committee under the chairmanship of the distinguished Congressman from Minnesota. I remember the day back 9 years ago when he came to this committee and started at this end of the rostrum. It is a great pleasure for me to see him presiding at these very important hearings.

Secondly, I would like to comment on the quality of the report presented by the Corps of Engineers. In my recollection of such studies I have seen very few that have approached the technical competence and thoroughness that Colonel Nauman's report on this project has achieved. I had the pleasure of sitting in the proceedings of the Board of Engineers on January 20 and I heard these distinguished officers unanimously comment on the very high quality of Colonel Nauman's work. I am very pleased to make this comment in recognition of a very competent and highly qualified job, well done.

Mr. BLATNIK. Thank you very much.

The Chair would like to express appreciation for the splendid assistance, that is, not only the zeal but the sound, reliable, factual authoritative, detailed and intricate information which was involved in regard to all of the Great Lakes shipping and the St. Lawrence seaway which your association, Dr. Danielian, has been most helpful in furnishing this committee.

Mr. MACHROWICZ. Mr. Chairman, I think all other members of the committee join with the chairman in that statement. I am certainly happy to express my agreement with it.

Mr. DONDERO. I am getting the impression that Dr. Danielian is in favor of this project, Mr. Chairman.

Dr. DANIELIAN. I think it might become apparent as you hear this brief statement, Mr. Dondero.

The Great Lakes-St. Lawrence Association represents a number of States, municipalities and industries of the Great Lakes-St. Lawrence Valley, including the States of Minnesota and Wisconsin and the cities of Milwaukee and Detroit, and a large number of industries of the Great Lakes area, including automobile, steel, and various manufacturing and financial enterprises.

The association has prepared a brochure entitled "The Connecting Channels—New Horizons for Great Lakes Transportation," which I would like to submit for the record. This statement contains all the facts that we wish to present at these hearings. I shall take up only a very few minutes to point out the pertinent reasons why these channels should be deepened to permit deeper draft navigation in the Great Lakes.

If the pending legislation is approved this year or next, allowing the time for planning and appropriations and the construction period,

the earliest date when the deeper draft connecting channels would be available for use would be 1962 or 1963. We are, therefore, here planning for the future.

This foreseeable future, it is already apparent, will be a period of further technological advances in shipping on the Great Lakes, which will require the deeper channels. Colonel Nauman and Admiral Spencer have already presented the facts upon which this conclusion is based. My first point, therefore, is that the deepening of the connecting channels is a technological necessity.

The second point I wish to make is that this project is of national, rather than local significance. Twenty-seven and a half percent of all waterborne tonnage of the United States, and 64 percent of all the ton-mileage in inland waterways, are carried on the Great Lakes. Eighty to eighty-five percent of the iron ore required by our steel industry comes down the lakes, and much of the grain traffic that moves east, and for export, from the Northwest in Canada and the United States, move on this waterway. These facts and more cited in our brochure prove beyond doubt that this committee, in considering the connecting channels, is dealing with a project of national importance.

I am quite aware that since 1939, every project that has been advanced before the Congress has had a national defense tag attached to it. Therefore, I come to this phase of the connecting channels project with some trepidation. I am not going to claim that if this work is not done, American industry is going to grind to a stop, and that our bastions of defense all over the globe will crumble into impotence.

In the past several years, however, we have learned to consider the effects of individual resource development projects, not on the end products, the hard goods of national defense, but upon the preparedness and the industrial posture of the country in case of need. Projects such as this must be considered not in terms of their impact upon the end products of national security, but the incremental impact in improving our position in the industrial mobilization scheme.

Viewed in this way, the deepening of the connecting channels will achieve two contributions to the improved posture of United States industry in case of mobilization. First, it will increase the carrying capacity of the lake fleet, and, secondly, it will protect the flow of iron ore and grain against possible interruption due to an unfortunate mishap in the downbound channels. If, and I hope this will never happen, a 600-foot or 700-foot ship sinks in the 300-foot wide channels of the West Neebish or in the 450-foot Livingstone Channel, the flow of vital raw materials would be seriously hampered unless the upbound channels which are now at 21 feet are deepened to take the diversion of traffic that would be necessary.

I would not be quite candid with this committee if I completely overlooked the bearing of the St. Lawrence seaway upon the utilization of these channels. I am cognizant of the fact that the Corps of Engineers place their full support of this project solely upon the basis of interlake traffic and have taken no account of the relationship of the deeper channels to the St. Lawrence seaway. I accept their conclusion that this improvement is needed and required, regardless of the seaway. On the other hand, as a practical matter, we cannot

overlook the fact that we are going to have a seaway of 27-foot depth and that if the States west of Lake Erie are to benefit by this new development, the connecting channels must be deepened to a commensurate draft.

In advancing this point, we are completely consistent with our past record. You will recall that over a period of 11 years, the connecting channels were an integral part of an international agreement and the legislative proposals based upon it. We supported these. Furthermore, when upon the accession of the new administration in 1953, a separation of the different parts of the St. Lawrence project was effected, we appeared before the House and Senate Committees on Appropriation supporting this particular project, even before the St. Lawrence seaway was enacted. There was no secret before the Congress, therefore, particularly in view of the fact that some $116,000 were appropriated by the 83d Congress to make this survey, that we aimed and hoped for ultimate authorization of this project. These facts were known to Congress when the St. Lawrence seaway legislation was enacted. We are, therefore, historically consistent in our appearance today before this committee.

We earnestly advocate, therefore, the enactment of legislation authorizing deepening of the connecting channels at the earliest practicable date, for the following reasons: because it is a technological necessity; because it is of national importance; because it will add an incremental element of safety in the flow of raw materials necessary for national security; because it would improve the economy of operation of lake shipping; and, finally, because it will complete a job which the Congress started with the enactment of the St. Lawrence legislation.

I wish to add one further note in connection with the comment made yesterday by Congressman Scudder, when the question of iron-ore flow was commented on. It was pointed out that for the next 50 years according to the Corps of Engineers' report, about 80 to 82 million tons of iron ore are expected to flow down the Great Lakes from the Lake Superior region to the lower lakes.

Mr. FALLON. Will the gentleman yield there? Is not that estimate much higher than we have ever heard before?

Dr. DANIELIAN. No, sir, Mr. Fallon. As a matter of fact, the record will show that all of the studies of the National Security Resources Board and later of the President's Materials Policy Commission indicated that they expected an average flow of around 80 million tons to continue from the upper lakes.

Mr. FALLON. For how many years?

Dr. DANIELIAN. For a long period of time. The only question on which there has been a difference of opinion has been the source of that and the kind of ore that it will be. The contention we have made in the past is as follows: That the open-pit ores would be dwindling, but that it would be made up as far as the upper lakes are concerned by their replacement from taconite beneficiation, and that the country's need for iron ore would be so increased that the incremental requirements of the country and the expanding requirements for iron ore would have to be brought in from other sources.

Only 4 weeks ago, at the Iron and Steel Institute meeting in New York, the statement was made that production of steel would be increased by 2 million tons a year, which in the next 10 years would

mean an increase in steel capacity of 20 million tons. That alone would require iron ore resources of 150 million or 158 million tons. That is very consistent with what the National Resources Board concluded 2 or 3 years ago.

Therefore, what we have contended is that the increasing requirements for iron ore of United States industry could not be met by the production of the Northwest, however stable they may be. That is the reason why other sources, such as Venezuela and Labrador, would be needed to feed the industries of the Middle West.

Mr. FALLON. Dr. Danielian, as I remember your testimony before this committee on several occasions, you testified that it was necessary to build the St. Lawrence seaway canal because of the diminishing supply of ore in the Mesabi Range. Today you give me a figure that I have never heard of before, that there will be how much, did you say? 85 million tons?

Dr. DANIELIAN. Eighty million to eighty-two million tons a year.

Mr. FALLON. A year, for 50 years.

Dr. DANIELIAN. I do not know how long it will continue, but it is hoped it will continue at that level. The estimates of the requirements of the country take that into account, but the point is that the needs of the country will be expanding and the expandibility of the northwest iron ore sources and open pit ore will be diminished in availability. Therefore, we have to tap sources outside of the boundaries of the United States—in Labrador and in Venezuela. That is what industry is doing to supplement the iron ore that is available from present sources.

Mr. FALLON. I am not questioning that. I am questioning the fact that your testimony, before the St. Lawrence seaway was authorized, and the testimony that you give today shows a wide difference.

Dr. DANIELIAN. You will find those figures in all the reports we have presented.

Mr. BLATNIK. As I stated yesterday, the official record of the freight tonnages for the Soo locks alone averages over 100 million in each 8-month year over a 10-year period.

Mr. FALLON. I do not question that at all; but I just question when you use the maximum here today and you were using the minimum 2 years ago here.

Dr. DANIELIAN. What we have always stated, Mr. Congressman, was that the open pit ores would go down in availability, and that would be made up as much as possible by taconite in Minnesota; but that the total from those sources available in Minnesota would not be sufficient to meet the expanding needs of the United States.

Mr. FALLON. That is not what I am questioning here today. I am questioning the fact that you used the minimum estimate for the Mesabi Ranges when you were here for the St. Lawrence seaway, and you are using the maximum estimate now.

Dr. DANIELIAN. I wish you would point to the record where we have ever departed from these figures.

Mr. FALLON. I will look in the record, but I do not think it is of much use. You are here for a different reason now. I would like to see your channels meet the needs up there today with your lake cargoes, but the only thing is, I do not think it is necessary for you to use one set of figures when you are on one side of the fence and another set when you are on the other side. Maybe, as it has been suggested up here, I take the figures too seriously.

Dr. DANIELIAN. No. You can never point to any part of the record where we have departed from these fundamental considerations. There might have been other witnesses, but not this one, who departed from these fundamental considerations with regard to the iron ore situation.

(The letter from Dr. Danielian follows:)

GREAT LAKES-ST. LAWRENCE ASSOCIATION,
*Washington, D. C., July 5, 1955.*

Hon. GEORGE H. FALLON,
*House of Representatives,*
*Washington 25, D. C.*

MY DEAR CONGRESSMAN: Last Thursday morning (June 30), there was some disagreement between us as to the position I had taken in previous hearings before your committee on the iron ore situation in the Lake Superior region. I realize that time has a way of blurring our recollection of events, particularly in a crowded and busy life. I can well understand that there may have been such an impression in your mind.

As I stated before the committee, my impression was contrary to yours. I therefore checked the record. I find that I made two appearances before your committee and its predecessor, one in 1941 and one in 1953, on the subject of the St. Lawrence seaway. In neither case did I go into the iron ore situation or give any figures relating to the flow of iron ore from the Lake Superior region. Last Thursday, in citing the Corps of Engineers' figure of 80 or 82 million tons of iron ore which the corps expects to come down the connecting channels over a long period of time, I could not possible have been inconsistent with my own past record before your committee, because I had made none.

You must, therefore, have been thinking of some other witness, which is perfectly understandable in view of the large number of witnesses which you, in your important position, must hear over a period of years. The witness who has spoken on iron ore for our organization was Mr. Earl M. Richards, a member of the executive committee of the association, and at that time vice president of Republic Steel Corp. He appeared to testify on the iron ore situation before your committee on June 18, 1953. This is what he said (House Public Works Committee hearings on H. J. Res. 104, 83d Cong., 1st sess., pp. 415 and 416):

"Mr. RICHARDS. You will note that this action of the steel companies agrees with the outlook given in the Resources for Freedom report, volume II, page 15, which I referred to before, and I quote:

" 'During the next quarter century there will be marked shifts in the sources from which the steel mills of the United States will draw their supplies of ore. Production from high-grade reserves in the Lake Superior region must eventually decrease. Production from taconite may be able to offset this decline, leaving output of the Lake Superior region close to the present level of 90 million tons.'

"In other words, the taconites might be able to hold the level. But here is the next thing:

" 'Expansion in consumption can be achieved only through larger imports. Shipments from Canada and Venezuela in the volume approaching 65 million tons could meet the probable requirements, and it is likely that such a volume of shipments can eventually be attained.'

"Mr. DONDERO. Do you mean to say to this committee that by 1970 you are going to require 65 million tons of foreign ore?

"Mr. RICHARDS. I do, sir, by 1975. And I have as my authority not only our own studies, but here is this President's Materials Policy Commission which I told you had representatives and scientists from Government and industry and from universities and research institutions. It is an impressive list of names * * *."

He had said substantially the same thing before the Senate Foreign Relations Committee on April 14, 1953 (Senate hearings on S. 589, p. 127).

You will note that Mr. Richards quoted the President's Materials Policy Commission report on "Resources for Freedom," where it is stated that production from taconite may be able to offset the decline in open-pit ores, leaving output of the Lake Superior region "close to the present level of 90 million tons."

Thus, the Corps of Engineers' estimate of 80 or 82 million tons of continuing flow from the Lake Superior region, which I cited, is lower, not higher than that upon which Mr. Richards made his case.

The past record in hearings made by any of our people has been and is consistent with this position: that recoveries from open-pit ores in the Mesabi Range

will diminish but may be made up by beneficiated ores and that the expansion of industrial requirements for ore, which are estimated to be close to 160 million tons by 1960 (National Defense Resources Board: House hearings, St. Lawrence seaway, 1951, pt. 1, p. 11), and close to 200 million tons by 1975 (President's Materials Policy Commission: Resources for Freedom, vol. II, table III, p. 13) must be made up from new sources.

You will agree, therefore, that we have not changed our estimation of these historical trends for any expediency in the presentation of arguments before your committee.

Thank you for your never-failing courtesy.

Sincerely yours,

N. R. DANIELIAN, *President.*

Mr. GENTRY. I am very negligent in not having been here, but may I ask what is supposed to be the cost of the witness' project?

Mr. BLATNIK. $110 million.

Mr. GENTRY. I asked Mr. Dondero when we got ready to vote on the St. Lawrence seaway, "Is this it, or will there be another succession of things asked for as a result of it?" He said, "This is it."

Mr. MACHROWICZ. Of course, the gentleman was not on the committee at the time, but there has never been any doubt on the part of anyone on this committee, or anyone proposing the St. Lawrence seaway, that the connecting channels would be requested. As a matter of fact, the testimony of the Corps of Engineers, as I understand it, was that whether or not the St. Lawrence Waterway will be constructed, the connecting channels are necessary anyway, and they are economically feasible.

Mr. GENTRY. I understand that, but I am telling you what Mr. Dondero told me. He said, "This is it."

Mr. FALLON. No. I think some of you members have too good a memory.

Mr. MACHROWICZ. I am sure Mr. Dondero's feelings were very well known to everyone on the committee, that the connecting channels was a project which it was always known to the members of the committee would be brought up.

Mr. GENTRY. Are there other things beyond this that might possibly follow?

Mr. BECKER. Probably.

Mr. MACHROWICZ. You mean, will progress end and there will be no more projects in Maryland or Texas?

Mr. GENTRY. No. In connection with the St. Lawrence seaway, which are incidental to it.

Mr. MACHROWICZ. You mean whether we will extend the canal any further? I will say definitely "No." We cannot. Nature has taken care of that.

Mr. FALLON. Will we have any request for deepening the channel that has not been dug yet?

Mr. MACHROWICZ. Which channel are you referring to?

Mr. FALLON. The seaway canal.

Mr. MACHROWICZ. I know of no intent to have any further channels deepened, if that is what you are referring to. Are you referring to ports?

Mr. FALLON. No, I was referring to the canal.

Mr. MACHROWICZ. I know of no intent to ask for any further channels to be deepened at this time.

Mr. WITHROW. There might be more expense if we continue diverting water from Lake Michigan.

Mr. BECKER. I would like to ask the doctor this question: You have given an estimate of $110 million as the approximate cost of this work?

Dr. DANIELIAN. Colonel Nauman testified yesterday it would be $109 million, or $115 million if the southeast bend of the St. Clair River is fixed up on the Canadian side.

Mr. BECKER. Very briefly, from a theoretical viewpoint, you mentioned the necessity of this for national defense. You seemed to be reluctant, but you mentioned it is because of national security, and for the benefit of the economy and for greater shipping in that area. You mentioned those various benefits. We are discussing the highway program now in the Congress. This is no criticism at all, but we are talking about taxing the users for that highway.

Just from a theoretical standpoint, would not that same reasoning apply here? All of these people are going to get the benefits, even though it will add to the national security just the same as our highway systems do. As a matter of fact, they want to call it a defense highway system. There will be that benefit as well as a benefit to the economic system. Would not the same theory apply here that all of these shipping companies——

Mr. FALLON. Mr. Becker——

Mr. BECKER. I am asking this gentleman a question. Would not our same reasoning apply here? All of these shipping companies will get the benefit of all the money being expended, and all of the industry there is going to get the benefit, and the whole economy, as well as the benefit to national defense.

Dr. DANIELIAN. There are two points I would like to make with regard to that, Mr. Congressman. First of all it is a question of national policy which should not be tackled in connection with any particular project. I think it is a question of overall policy.

If you intend to put tolls on all waterways of the United States I think the Congress of the United States should have the courage to face up to that issue as an overall policy question, and not in piecemeal fashion in connection with specific projects such as this.

Mr. BECKER. This is purposely being done so that larger ships and more heavily loaded ships can go through those connecting channels, is that not true?

Dr. DANIELIAN. Yes, that is true.

Mr. BECKER. So it is not applying our river theory. We have lots of projects where deepening is necessary to get any kind of shipping through, where the silt washes down, and various other things, and where we have flood control involved. I can understand that. But here you have a complete economic gain for industry, business, and shipping, and for everyone who is using that particular project. I do not think the national defense will be aided very greatly insofar as all of this extended deepening of these channels is concerned.

Why should there not be a partial amount of the cost borne by the beneficiaries—the distinct beneficiaries?

Dr. DANIELIAN. We have made a study—and this is the second point I would like to make—of the per ton-mile contribution made by the Federal Government to the Great Lakes traffic. All of the investment of the Federal Government plus the annual operating expenses in the Great Lakes area have added up to assistance by the Federal Government of 1 one-hundreth of 1 cent per ton-mile.

Mr. BECKER. I cannot dispute those statistics with you, Doctor.

Dr. DANIELIAN. I would not know what kind of a user charge scheme you could establish which would really recoup that infinitesimal amount of assistance from the Federal Government.

Mr. BECKER. We put tolls on toll roads and on bridges and on loads of things. We put tolls on ships going under certain bridges.

Dr. DANIELIAN. I wonder if you would favor similar treatment of New York Harbor, for instance?

Mr. BECKER. New York Harbor has only been deepened in certain spots. That is because you have the washing of silt down the Hudson River. We have done that in various places throughout the country to keep the waterways open.

Dr. DANIELIAN. The principle is the same.

Mr. MACHROWICZ. Do you know of any navigation project——

Mr. BECKER. Mr. Chairman, I am not a witness here. I am interrogating the witness. If the gentleman wishes to ask the witness some questions it is fine with me.

Mr. MACHROWICZ. I want to know do you know——

Mr. BECKER. You ask the witness your questions and I will ask him mine. Excuse me. That is a quorum call.

Mr. BLATNIK. This is a quorum call. We have been in a tight squeeze here ever since yesterday. The Chair wants to express its regrets to the witnesses, most of whom have come from out of town. However, I am sure you understand the circumstances. Yesterday we had an executive session of the full committee which was late in getting started. That ran us into a session of the House before we could make too much headway. We did sit yesterday afternoon and managed to get some of the witnesses heard. Today the House was to convene at 10 a. m.

We have a choice to make at this moment. Shall we conclude the hearings by inserting the statements of the remaining two witnesses, which I would personally have liked to have heard, but I am sure you all understand the situation we are in. Or, shall we chance convening this afternoon, although the Chair doubts that the Speaker will grant us permission to hold hearings since there will be a rush schedule on the House floor.

Mr. SCHWENGEL. Would it be possible for these witnesses to appear tomorrow?

Mr. BROCKEL. I will be very happy to file my statement for the record.

Mr. BLATNIK. Just insert the statement?

Mr. BROCKEL. Yes, sir.

Mr. BEUKEMA. And I will be very happy to file my statement, Mr. Chairman.

Mr. BLATNIK. Without objection, you may file the statements. Without objection the statements of Mr. Brockel, director of the Port of Milwaukee Commission, and of Mr. John C. Beukema, president of the Great Lakes Harbors Association, will be filed following the presentation by Dr. Danielian.

Mr. SCHWENGEL. I just want to raise this point. These people are here on a very important project. As a freshman Congressman I would like to hear them. I think we do too much of this filing of statements without the opportunity of cross-examination, which would give us some better enlightenment on the positions that we might

have to take. This is a new experience to me and I am very interested to hear both sides so as to come to some conclusion myself.

If possible I would like to have these people given a chance at least to make an oral statement and give us an opportunity to cross-examine them.

Mr. BLATNIK. The chances are against our having the time either this afternoon or tomorrow morning, because the Roads Committee will meet tomorrow morning.

Dr. DANIELIAN. Even though Mr. Brockel and Mr. Beukema have consented to file their statements I would like to make a plea that we hear them because they are very important statements.

Mr. BLATNIK. I agree, and the Chair would like very much to hear the two gentlemen in person. Without objection the statements will be filed and the Chair will ask the Speaker of the House for permission to sit this afternoon at 2 p. m., and all members and parties concerned will be so notified. We will make every effort to continue these hearings.

Mr. CRAMER. Could I ask one question?

Mr. BLATNIK. Mr. Cramer.

Mr. CRAMER. My understanding is this act provides for a controlled depth of 27 feet. Am I also correct in my understanding that the present controlling depth is about 24½ feet?

Dr. DANIELIAN. At the present time the downbound channel is 25 feet and the upbound channel is 21 feet, but the proposed project aims at creating drafts of varying depths which will give it ships operating drafts of 25½ feet, or 25 feet 4 inches. In some cases 27 feet will be enough but in other cases where you may have rock bottoms they will go a little farther than 27 feet in order to achieve ship operating drafts of 25.4.

Mr. BLATNIK. Are there any other questions? If not, we have some more insertions to be included at the point in the record where the statements of our colleagues were inserted yesterday. At this point the prepared statements of Harry C. Brockel and John C. Beukema will be made a part of the record.

(The statements referred to are as follows:)

STATEMENT OF HARRY C. BROCKEL, MILWAUKEE, WIS., REPRESENTING HON. WALTER J. KOHLER, JR., GOVERNOR, STATE OF WISCONSIN; DEEP WATERWAYS COMMISSION, STATE OF WISCONSIN; GOVERNOR'S SEAWAY COMMITTEE, STATE OF WISCONSIN; BOARD OF HARBOR COMMISSIONERS, CITY OF MILWAUKEE, WIS.

This statement is offered on behalf of the State of Wisconsin and the city of Milwaukee, Wis. The State of Wisconsin, by action of the State legislature, by action of its deep waterways commission, by action of the Governor's seaway committee, and by action of Governor Kohler, strongly supports the legislation under consideration by your honorable committee. The city of Milwaukee, by action of its common council and the board of harbor commissioners, desires also to record its vigorous support of this legislation.

The proposal before you presents a national rather than a regional problem although it is, of course, of intense interest to the maritime enterprises of the Great Lakes area. The present critical international situation has led to a national policy aimed at steel production of 160 million tons per year compared to about 110 million tons, present annual capacity. The objective of greatly increased steel capacity is a major national-defense consideration. Whether or not it is achieved will depend in large measure upon the efficiency of bulk steamship operations on the Great Lakes and this, in turn, will largely be controlled by channel capacity.

The impact of larger and deeper ships, both in our Great Lakes and ocean merchant marine, will progressively require a systematic deepening of major ocean harbors, inland waterways, and Great Lakes channels. In our opinion, Congress

should regard this as a technological advance required by changing trends in lake and ocean shipping.

New shipping requirements on the Delaware River, in New York Harbor, on the gulf coast, and in other localities have been recognized by Congress. The trend in world shipping is constantly toward larger and deeper vessels, with greater depth of channel required to accommodate them. The newest types of petroleum tankers, for example, carry up to 40,000 tons of cargo in a single vessel and require channel drafts of 40 to 45 feet in principal world harbors.

The composition of the postwar fleet on the Great Lakes has been changed greatly by the addition of many new and larger vessels. These new ships range in size from 640 feet to 700 feet or more in length, and are designed to operate at drafts of 25 feet or more.

The steamer *Joseph H. Thompson*, with an overall length of 714 feet, is the third longest vessel in the American merchant marine. Since it was commissioned for Great Lakes service late in 1952, this ship has operated at 80 percent or less of its cargo capacity because of draft limitations. When the Great Lakes drop to lower levels, the carrying capacity of the *Thompson* and many other modern postwar freighters is further reduced because of insufficient depth in the connecting channels.

The Congress is considering appropriations for deepening 31 miles of the Delaware River, at an estimated cost of $87 million, principally to serve the new Fairless mill of the United States Steel Corp. For about $25 million more, the St. Clair River, Detroit River, St. Mary's River, and shoal areas in the Straits of Mackinac can be deepened to accommodate deep draft shipping on the Great Lakes, including large lake vessels now operating, and deep draft ocean ships scheduled for St. Lawrence seaway operation beginning in 1959. The deepening of the connecting channels of the Great Lakes will benefit all of the States in the Great Lakes Basin and the economy of the entire country. The Great Lakes region is the most vital industrial and agricultural region of the world, and improved navigation facilities for this area are completely justified by the great economic benefits which will follow in their wake.

The Great Lakes and their connecting channels form a natural transportation highway which has contributed greatly to the strength of North America and to the development of our country. The strong industrial economy of the Great Lakes region is predicated upon low freight rates for the transportation of industrial raw materials. Vessel owners have tried to maintain low freight rates on bulk cargoes by increasing the carrying capacity of their ships and by using more efficient power to permit more trips per season. Provision should be made to permit the modern postwar fleet of lake ships to operate at their maximum capacity and to meet transportation demand at traditionally low freight rates with great resulting economic benefit to the Nation.

Shipowners since World War II have invested private funds amounting to nearly a quarter of a billion dollars in modernization and expansion of the Great Lakes fleet. Public and private interests in the region are preparing to expend many millions in preparing harbors and port facilities to accommodate prospective St. Lawrence seaway traffic. The National Government has an obligation to maintain these arteries of water transportation to full capacity and to full efficiency, just as we concern ourselves with other modes of transportation in the public interest. No Federal subsidy is provided for domestic shipping. The only assistance required of Government by the domestic fleets on the Great Lakes is the provision of a modern highway.

In 1953, the United States waterborne commerce on the Great Lakes amounted to 256,250,000 net tons, of which the overwhelming proportion was domestic traffic. Domestic cargoes on the lakes amounted to 209,756,000 tons, equal to 82 percent of the total. The remaining 46,494,000 tons consisted largely of Canadian traffic, with a small but rapidly growing volume of overseas traffic. The foreign commerce of the Great Lakes moving through American ports represents significant movements of raw materials and finished goods, just as vital to our economy as the domestic commerce on these waterways. The huge volume of traffic to be served by deeper connecting channels emphasizes the importance and the need for authorization of this project now.

The changing technology of shipping and the growing commerce of an expanding nation justify a change in the national policy to provide deeper draft channels in our principal ocean harbors and in the Great Lakes. The Great Lakes region supports such a national policy, but expects and demands reasonable participation in any national program of modernizing shipping channels.

In summary, there are four compelling reasons for immediate deepening of Great Lakes connecting channels:

(1) Deepening of the channels will provide increased vessel capacity of definite economic benefit to Great Lakes shipping and the industries which it serves.

(2) The improvement is required in the interest of national defense, and will provide improved safety of operation for lake shipping.

(3) The present limitations of upbound channels in the Great Lakes system upstream from Detroit will not permit movement of Labrador ore in deep draft vessels to Detroit or points upstream. It is essential that this ore movement be extended to all principal ore ports west of Lake Erie.

(4) The construction of the St. Lawrence seaway project by the United States and Canada is well underway. The 2,400-mile highway of water transportation between the Atlantic and the westerly reaches of the Great Lakes will be seriously handicapped if 27-foot shipping is operative only to Lake Erie following the opening of the seaway. The States of Wisconsin, Minnesota, Michigan, Illinois, and Indiana would be definitely prejudiced in their utilization of the Great Lakes-St. Lawrence route unless a uniform 27-foot depth of navigation prevails throughout the system.

The Honorable Walter J. Kohler, Governor of the State of Wisconsin has asked me to convey to your honorable committee his expression of strong, personal support for the legislation before you. The State of Wisconsin has many major and minor ports on Lake Superior and Lake Michigan, and Governor Kohler urges that deep-draft channels be provided into Lakes Superior and Michigan to serve modern shipping demands and to permit these ports to function at full capacity and efficiency.

It is respectfully requested that resolutions adopted by the Wisconsin Legislature and the common council of the city of Milwaukee be inserted by your honorable committee in the record of these hearings as evidence of official support from the agencies which I represent.

(NOTE.—The deep waterways commission is a statutory commission of the State of Wisconsin, created by the Wisconsin Legislature to promote the St. Lawrence seaway and to effectuate deep-draft waterways connecting the Great Lakes with the several oceans.

(The Governor's seaway committee consists of 31 citizens, representing agriculture, industry, veterans groups, and civic interests. It was appointed by Governor Kohler to promote Wisconsin support of the St. Lawrence seaway project, and has received the further assignment of developing support for the deepening of Great Lakes connecting channels.

(The Board of Harbor Commissioners, City of Milwaukee, is a municipal commission, created by the Wisconsin Legislature. It has the responsibility of planning, developing, and operating modern municipal port facilities for the port of Milwaukee and of promoting the commerce of the port of Milwaukee. It has been active in the promotion of the St. Lawrence seaway project, deepening of lake connecting channels and general development of the economic potential of the Great Lakes region.)

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STATEMENT OF JOHN C. BEUKEMA, MUSKEGON, MICH., PRESIDENT, GREAT LAKES HARBORS ASSOCIATION

My name is John C. Beukema. I reside at North Muskegon, Mich. I am testifying for and in behalf of Great Lakes Harbors Association, on organization of the municipalities bordering on the Great Lakes littoral, their several port commissions, and other marine interests, which I have the honor to serve as president.

We believe the proposed connecting channels in the upper Great Lakes, viz, Detroit River, St. Clair River, St. Mary's River, and Lake St. Clair should be deepened to a minimum depth of 27 feet as recommended in the United States Engineers report. We present the following reasons therefore:

(1) Deepening is primarily necessary to meet the needs of our own existing Great Lakes commerce, of a domestic character, particularly in the carriage of bulky raw materials such as iron ore, grain, coal, limestone, petroleum and its products, etc.

(2) Deepening is also necessary to meet the needs of the world commerce and shipping when the new channels and locks in the St. Lawrence River, authorized by Congress in 1954, and their Canadian counterparts, are completed in 1958.

As the gentlemen of the committee are doubtless aware, carriage of bulk commodities on the Great Lakes is probably the most important waterborne commerce in America. According to the report of the Chief of Engineers, the Detroit River in 1953 carried over 154,322,381 tons, the bulk of which was of this character.

We live in a steel age. Approximately 85 percent of all the steel produced in America is made from iron ore produced in the upper Great Lakes region, principally Minnesota and Michigan. The steel mills of Buffalo, Pittsburgh, Cleveland, Youngstown, Chicago, and intermediate points could not operate without this steady flow of iron ore and limestone.

The constant trend is toward newer and larger vessels, with greater carrying capacity, in order to achieve lower transportation costs per ton. The vessels of a previous generation that carried 10,000 to 12,000 tons are completely outmoded, and being replaced by vessels carrying double that tonnage.

Take the new *George M. Humphrey*, for instance, built at Loraine, Ohio, by American Ship Building Co., and completed in 1954. She has a 75-foot beam and a depth of 37 feet 6 inches. She draws 25 feet 6 inches of water, when fully loaded at 24,000 tons. She has a length of 710 feet, and has 19 hatches, 17 feet fore and aft by 54 feet across. Obviously she cannot be operated economically in the present 21- and 25-foot channels, upbound and downbound, respectively. Hence, channel deepening should keep pace with ship construction, both in the Great Lakes and on the seaboard, to the end that the American people may benefit from the lowest possible transportation costs.

I recall the saying of the late John Hays Hammond, who told Congress once that the difference between our American civilization and Chinese civilization was 1 cent per ton-mile on our American railroads versus $1 per ton-mile on a Chinese coolie's back.

To augment our Great Lakes fleet, and accelerate the modernization program, we are bringing in off the ocean lanes and converting C–3's and C–4's ships of the mariner class, and putting them into this service. Greater speed and greater carrying capacity is essential if we are to keep down the cost of raw steel. May I point out that transportation costs on raw materials are a basic factor in this cost. Raise the cost of steel per ton and that increase will be reflected in the cost of virtually every manufactured article in which steel is a component. Hence, every penny saved in the cost of transporting ore and limestone has a bearing on the cost of living to every American citizen, everywhere. Lower transportation costs on the Great Lakes are therefore a matter of national, and not merely regional concern.

Congress in its wisdom, and we hail the action, has seen fit to create a 27-foot waterway from Toledo, Ohio, or rather, Monroe, Mich., to the Atlantic Ocean. But the major benefits of this waterway will not be realized until great ports like Chicago, Milwaukee, Detroit, Duluth, and other upper lakes ports are made equally accessible to the larger ships. These ships don't stop at one port, they traverse the entire route, picking up cargo at each port of call, just as a Pacific liner may stop at Yokohama, Hong Kong, and Manila. The upper lakes ports have a hinterland that reaches back to the Rockies. Hence the benefits of the seaway will not be fully realized by the farmers of Iowa, Montana, and the Dakotas until the upper lakes are opened to these larger ships and we have a uniform 27-foot waterway all the way from Chicago and Duluth to the ocean. This is a distance of nearly 2,400 miles, or two-thirds of the way across the North American Continent.

Your witness testified in 1933 before a Senate subcommittee in behalf of the seaway. We encountered at that time quite a strong feeling that foreign commerce in the Midwest was virtually nonexistent, even though the Great Lakes States produce 31 percent of all the manufactured product made in the United States, and together with their tributary upper Mississippi Valley States, produce 34 percent of all the agricultural product. To refute this contention, we brought the first foreign-flag steamer capable of navigating the present 14-foot canals into the lakes in 1935. By 1939, the outbreak of the war, we had 4 lines and 17 ships. The war destroyed the entire fleet. We started again from scratch in 1946. Now we have 14 lines with 100 ships in the service, not including charters. We had over 250 sailings from Great Lakes ports last year.

We believe that the prosperity of the United States rests on a fundament of low-cost transportation, be it water, rail, truck, or air. Everything that lowers this cost raises our standard of living and makes it possible for the average man to acquire more goods and greater material enjoyment. When the Panama Canal was opened, the era of development on our west coast began, and the whole Nation prospered. When good roads were extended to Florida, the boom in Dixie began. These regional booms, and the demand for capital goods they generate, sustain the whole economy. We believe a completed St. Lawrence, with deeper channels to the head of the lakes, will generate another such period of prosperity.

The suggestion has been advanced that tolls be levied to finance this improvement. This is contrary to all precedent in the field of river and harbor improvement. It would be a major break in policy that must inevitably extend in time to every harbor on our seacoast, every navigable river. You could not in equity, for instance, defray the cost of deepening these channels through the medium of tolls on vessels and cargoes without doing the same thing in respect to the meritorious project for deepening the Mississippi River below New Orleans, or the project for deepening the Delaware River north of Philadelphia, largely for the benefit of a single industry. We object to tolls on principle, on the ground that they are utterly inconsistent with a great national policy, inaugurated in the days of Henry Clay, and upon which so much of the growth and prosperity of America has depended.

There are other objections. Tolls imply an added administrative cost. These channels wind in and around the international boundary line. Hence, unilateral action by this country violates polity between nations—in other words, no tolls should be levied unless we have an agreement with Canada regarding them. Under the Boundary Waters Treaty of 1909, and the predecessor agreement of 1870, these channels are ever open to the ships of both countries on a parity basis. We believe the objection to tolls is well nigh insuperable, and that a proper study of the subject will make this clear. This is true—Congress could not discriminate against the Great Lakes in this respect—particularly in view of the fact that port and channel improvements in the lakes represent the lowest unit cost per ton of commerce carried on all the waterways of America—without creating a precedent that must inevitably be extended to every other port and waterway.

Deeper channels, gentlemen, are part and parcel of the great American policy to develop the resources of this country in the interest of an expanded commerce and trade, so that prosperity may be maintained and the state demonstrate its intelligent interest in the welfare of every citizen, even the humblest. I thank you.

Mr. BLATNIK. We have communications from the commissioner of the department of commerce of the State of New York, Mr. Edward T. Dickinson, in support of the project and we have wires in support of the project from the Superior City Council of Superior, Wis.: from Mayor Arthur J. Gardner, the mayor of Erie, Pa.; from the mayor of Milwaukee, Frank P. Zeidler; from the mayor of Lorain, Ohio, John C. Jaworski; from the mayor of Buffalo, Steven Pankow; from the Chicago Association of Commerce and Industry, signed by Thomas H. Coulter, chief executive officer; a letter from the Association of Commerce, Superior, Wis., by Mr. R. W. Pruden, executive manager; a wire from Ray H. Weisbrod, executive vice president of the Milwaukee Association of Commerce; a wire from Arthur C. Kochendorfer, executive manager, Toledo Chamber of Commerce; a wire from Harold E. Pace, master of the Iowa State Grange; a wire from Floyd Fuqua, master of the Oklahoma State Grange, of Nardin, Okla.

These are all in favor of the project.

Also a wire by H. C. Filley, master of the Nebraska State Grange, in favor of deepening the channels.

Without objection these letters and wires will be made a part of the record at this point.

(The documents are as follows:)

STATE OF NEW YORK,
DEPARTMENT OF COMMERCE,
*Albany, June 28, 1955.*

Hon. JOHN A. BLATNIK,
*Chairman, House Public Works Subcommittee on Rivers and Harbors,*
*New House Office Building, Washington, D. C.*

DEAR MR. BLATNIK: New York State is vitally interested in the legislation, now being considered by your subcommittee, which proposes the deepening of the connecting channels of the Great Lakes.

The St. Lawrence seaway will have a depth of 27 feet to accommodate anticipated traffic, but this will be of limited benefit unless the connecting channels conform to a uniform footage. Commerce of New York State and the entire Great Lakes area will materially benefit by permitting vessels to pass more freely between Lake Erie and the upper lakes. To realize the full potential of the seaway it is essential that the channels be improved to a uniform depth of 27 feet, both upbound and downbound.

I recommend that this bill be reported favorably.

Sincerely,

EDWARD T. DICKINSON.

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SUPERIOR, WIS., *June 29, 1955.*

HON. JOHN A. BLATNIK,
*Chairman of the House Public Works Committee,*
*House of Representatives:*

Regarding hearings by subcommittee on Rivers and Harbors on deepening of Great Lakes connecting channels, city of Superior most heartily endorses deepening of connecting channels of Great Lakes. We feel this action is vitally necessary to economic development of the entire Midwest as well as of extreme importance to the defense program of the United States. Earnestly request the passage of legislation calling for deepening of the connecting channels to a minimum 27-foot draft.

SUPERIOR CITY COUNCIL,
DR. EDWARD G. NELSON,
*President.*

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ERIE, PA., *June 27, 1955.*

HON. JOHN A. BLATNIK,
*Congressman, House of Representatives, Washington, D. C.*

DEAR CONGRESSMAN BLATNIK: I urge support of program for deepening of Great Lakes connecting channels.

Yours sincerely,

ARTHUR J. GARDNER, *Mayor.*

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MILWAUKEE, WIS., *June 29, 1955.*

Hon. JOHN A. BLATNIK,
*Committee on Public Works, House of Representatives,*
*Washington, D. C.:*

City of Milwaukee supports national program for modernization of principal harbors and shipping channels, consistent with growing commerce, national defense, increased foreign trade, and trend toward larger and deeper draft vessels in lake and ocean trades. Especially urge immediate congressional authorization for deepening of Great Lakes connecting channels. This project justified on its own economic merits as a needed improvement in Great Lakes transportation. St. Lawrence seaway project now under construction provides added economic justification. Nominal cost to deepen lake channels can be spread over next 4 or 5 years without unreasonable impact on national budget. Project urged in the national interest as well as for the Great Lakes region which is the industrial and agricultural heartland of the continent. Your support of authorization bills now before Congress will be deeply appreciated by this community.

FRANK P. ZEIDLER, *Mayor.*

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LORAIN, OHIO, *June 28, 1955.*

Congressman JOHN BLATNIK,
*House of Representatives, Washington D. C.:*

Urge support for a favorable action on the deepening of the connecting channels for proper utilization of all the Great Lakes and direct connection to water ports of the world. Is economically important for the welfare of all people in the Great Lakes region. Thank you for favorable consideration.

JOHN C. JAWORSKI, *Mayor.*

BUFFALO, N. Y., *June 29, 1955.*

Hon. JOHN A. BLATNIK,
*Subcommittee on Rivers and Harbors of Public Works Committee,*
*House of Representatives, Washington, D. C.*

Buffalo favors deepening ot the connecting channels of the Great Lakes, namely the St. Marys, St. Clair, and Detroit Rivers. The new opportunities offered by the completion of the St. Lawrence seaway should be made available equally to all ports of the Great Lakes.

STEVEN PANKOW, *Mayor.*

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CHICAGO, ILL., *June 29, 1955.*

Hon. JOHN A. BLATNIK,
*House Office Building,*
*Washington, D. C.:*

The Chicago Association of Commerce and Industry, representing business and commercial interests of the Chicago metropolitan area, through its board of directors, on May 13, 1955, voted unanimously in favor of the proposed deepening of the Great Lakes connecting channels so as to provide a controlling safe draft of 25.5 feet when the lakes are at low-water datum. Studies made by the association's harbors and waterways committee and the transportation committee show that the project is economically sound and that the benefit-to-cost ratio of 1.78 to 1, reported by the Corps of Engineers, United States Army, is very conservative: that when the economy to the total volume of traffic moving through the connecting channels is taken into consideration the benefit-to-cost ratio would be much greater. The association, therefore, urges approval of the proposal to deepen the St. Marys River, the Straits of Mackinac, the St. Clair and Detroit Rivers, and Lake St. Clair. I regret that the association cannot appear at hearings of your subcommittee on June 29 and 30, and, therefore, would appreciate having this telegram made a part of the record of the hearings before your committee.

THOMAS H. COULTER,
*Chief Executive Officer.*

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ASSOCIATION OF COMMERCE,
*Superior, Wis., June 27, 1955.*

Mr. JOHN A. BLATNIK,
*House Office Building, Washington, D. C.*

DEAR JOHN: The Association of Commerce harbor committee and board of directors have gone on record in favor of deepening the connecting channels of the Great Lakes. As you know, unless these channels are deepened, Duluth and Superior will benefit very little from the St. Lawrence seaway.

We sincerely hope that you will present our views at the hearing.

Cordially yours,

R. W. PRUDEN, *Executive Manager.*

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MILWAUKEE, WIS., *June 28, 1955.*

Congressman JOHN A. BLATNIK,
*New House Office Building,*
*Washington, D. C.:*

The Milwaukee Association of Commerce is vitally interested in the deepening of the connecting channels consisting of the St. Marys, St. Clair, and Detroit Rivers. This project needed for improvement in lake transportation and future development of the St. Lawrence seaway. Would appreciate favorable action on this measure.

RAY H. WEISBROD,
*Executive Vice President.*

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TOLEDO, OHIO, *June 28, 1955.*

Representative JOHN A. BLATNIK,
*Chairman, Subcommittee on Rivers and Harbors of the House Public Works Committee, Washington, D. C.:*

Toledo Chamber of Commerce by action of its board of trustees favors legislation providing for the deepening to 27 feet of connecting channels of the Great

Lakes. This action based on recommendation of chamber's river and harbor committee.

ARTHUR C. KOCHENDORFER,
*Executive Manager.*

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MUSCATINE, IOWA, *June 28, 1955.*

JOHN BLATNIK,
*Chairman, Rivers and Harbors Subcommittee of House Public Works Committee, Washington, D. C.:*

Iowa State Grange favors the passage of the St. Lawrence seaway project of deepening the channel for oceangoing vessels.

HAROLD E. PACE, *Master.*

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BLACKWELL, OKLA., *June 28, 1955.*

Hon. JOHN BLATNIK,
*Chairman, Rivers and Harbors Subcommittee,*
*House Public Works Committee, Washington, D. C.:*

Oklahoma State Grange favors the pending legislation before Congress in regard to the deepening of the St. Lawrence seaway so that larger ships may come into the Great Lakes.

FLOYD FUQUA,
*Master, Oklahoma State Grange, Nardin, Okla.*

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LINCOLN, NEBR., *June 28, 1955.*

Hon. JOHN BLATNIK,
*Chairman, Rivers and Harbors Subcommittee of*
*House Public Works Committee, Washington, D. C.:*

Nebraska Grange approves proposals now before your committee for deepening connecting channels of Great Lakes-St. Lawrence seaway. Increased use of seaway will yield big return on investment.

H. C. FILLEY,
*Master, Nebraska State Grange.*

Mr. MACHROWICZ. In connection with the telegrams and communications, I would like to ask a question of the chairman. Have there been any statements received from anyone in opposition to the project?

Mr. BLATNIK. We have received no requests from any opposition witnesses either to appear in person or to file statements; nor have any opposition wires or letters or statements been received to be included in the record by the committee or the chairman.

Mr. MACHROWICZ. And all interested parties have been informed?

Mr. BLATNIK. All interested parties have been informed and several telephone conversations have been held in followup for the purpose of making certain that they knew of the nature and purpose of the hearings; and by telephone they expressed the information that they would not be appearing in opposition.

Dr. DANIELIAN. I have a communication here from the Chicago Regional Port District which I would like to place in the record, with your permission, in support of this project.

Mr. BLATNIK. Who is it signed by?

Dr. DANIELIAN. It is signed by Mr. Maxim M. Cohen, general manager.

Mr. BLATNIK. Without objection, it is so ordered.

(The letter is as follows:)

CHICAGO REGIONAL PORT DISTRICT,
*Chicago, Ill., June 29, 1955.*

Dr. N. R. DANIELIAN,
*President, Great Lakes-St. Lawrence Association,*
*Washington 6, D. C.*

DEAR MR. DANIELIAN: On behalf of the board wish you would express our regrets to Hon. Charles A. Buckley, chairman of the Committee on Public Works, in connection with the Great Lakes connecting channels hearing. Due to a combination of cirumstances involving the procurement of construction bids for the first phase of the Lake Calumet development as well as other legal situations, it has been impossible for either the writer or any member of the board to personally testify. The same condition probably holds true with the State of Illinois representatives in view of the culmination of the present session in Springfield which expires June 30.

We would be pleased if you would advise the committee that the board affirms the statements it has made on previous occasions of being wholeheartedly in favor of the deepening of the Great Lakes connecting channels. The board's position is that the full effects of the St. Lawrence seaway will not be developed nor its greatest economy expanded until such channels are deepened to recommended draft.

The board also feels that the benefits to domestic carriers hauling the vast tonnage on the great lakes will be greatly augmented by this project.

The board's further position is that every possible effort should be made to inaugurate this project as early as possible so that its completion may coincide with the St. Lawrence seaway.

Chicago and the State of Illinois as well as the entire Midwest stand at the threshold of a new and expanding economy that will be greatly augmented by the fulfillment of this project.

With kindest personal regards, I am

Very truly yours,

MAXIM M. COHEN,
*General Manager-Secretary.*

Mr. BLATNIK. The meeting is adjourned and the Chair will notify you if it is possible for us to meet at 2 p. m. today.

(The following material was furnished for insertion:)

STATEMENT OF HON. CLEMENT J. ZABLOCKI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WISCONSIN

Mr. Chairman, I appreciate this opportunity of presenting a statement in support of the pending legislation which would authorize certain necessary improvements in the Great Lakes connecting channels.

Last year the division engineer of the North Central Division, Corps of Engineers, conducted an extensive study of the proposed deepening of the Great Lakes connecting channels. His recommendations, published on December 2, 1954, have been reviewed and approved in substance by the Board of Engineers for Rivers and Harbors and by the Chief of Engineers. It is now up to Congress to act on legislation which would carry these recommendations into effect.

I had carefully reviewed the reports submitted by the Corps of Engineers and I was deeply impressed by the findings and suggestions contained in them. It has been determined that the present and prospective needs of the Great Lakes traffic warrant the improvement and the deepening of the connecting channels to the point at which these channels will have a controlling safe draft of 25.5 feet when the level of the controlling lake is at low water datum. It is anticipated that transportation savings to Great Lakes commerce will furnish an adequate economic justification for the cost of this plan.

The proposed deepening of the connecting channels promises to be of great benefit not only to the Great Lakes region, but to the economy of our entire Nation as well. I have already mentioned the anticipated transportation savings which will be realized from this project. In addition, the improvement program is expected to make it possible for the operators of vessels on the Great Lakes to increase the carrying capacity of their freights to meet the requirements of our industries for basic materials in any possible emergency. Finally, full utilization of the St. Lawrence seaway will require the deepening of the connecting channels.

I earnestly hope that your committee will take prompt and favorable action on the proposed legislation which would carry into effect the recommendations made

by the Corps of Engineers. At this point I would like to commend to the consideration of your committee resolutions on this subject adopted respectively by the common council of the city of Milwaukee, Wis., and by the Wisconsin State Legislature.

"MILWAUKEE COMMON COUNCIL RESOLUTION

"Whereas the Governments of the United States and Canada are now engaged in the construction of the St. Lawrence seaway project, which, when completed in 1959, will open the port of Milwaukee and other cities of the Great Lakes to deep draft ocean navigation, with great benefits to the economy of the entire midcontinent area and to national defense; and

"Whereas the St. Lawrence seaway project will provide 27-foot navigation only to Lake Erie, and the connecting channels of the Great Lakes in the Detroit River, St. Clair River, Straits of Mackinac and St. Marys River will require deepening in order to bring the full benefits of the St. Lawrence seaway project and deep draft navigation to the ports of Lake Huron, Lake Michigan, and Lake Superior; and

"Whereas entirely aside from the requirements of the St. Lawrence seaway project, the deepening of Great Lakes shipping channels is timely and necessary to utilize to full capacity the many large vessels which have entered service on the Great Lakes recently, representing an investment of hundreds of millions of dollars, and which are now unable to operate at full capacity due to channel depth limitations; and

"Whereas the deepening of Great Lakes connecting channels will add to the efficiency of lake and ocean shipping and will confer great economic benefits on the commerce of the Great Lakes and of the entire Middle West, and is consistent with the trend toward deep-draft shipping and the substantial deepening of seaboard harbors at many localities; and

"Whereas congressional legislation for this purpose should be given high priority so that the deepening of Great Lakes connecting channels may be completed in time to coincide with the completion of the St. Lawrence seaway project: Now, therefore, be it

"*Resolved by the Common Council of the City of Milwaukee, Wis.*, That this body hereby declares its vigorous support for legislation to authorize the deepening of Great Lakes connecting channels and the appropriation of funds for that purpose by the Congress; and be it further

"*Resolved*, That the Senators and Representatives from Wisconsin be requested to exert their best efforts to secure the passage of such authorizing and appropriating legislation by the 84th Congress; and be it further

"*Resolved*, That the Board of Harbor Commissioners and other interested city officials and departments be authorized by this common council to take all steps necessary to further the progress of connecting channels deepening legislation, and to collaborate with all other ports, associations, and interests working toward this end; and be it further

*Resolved*, That certified copies of this resolution be transmitted by the city clerk to the President of the United States; to the Senators and Members in Congress from the State of Wisconsin; to the Public Works Committee, House of Representatives; to the Commerce Committee, United States Senate; and to the Chief of Engineers, United States Army."

"STATE OF WISCONSIN RESOLUTION

"Whereas the United States of America and the Dominion of Canada are now constructing the St. Lawrence seaway project, scheduled for completion in 1959, which will open the ports of the State of Wisconsin to deep-draft ocean navigation, with great benefits to Wisconsin port communities, to this State, and to the entire Nation; and

"Whereas the St. Lawrence seaway project will bring 27-foot navigation only to Lake Erie and in order to bring the full benefits of the project to the ports on Lake Huron, Lake Michigan, and Lake Superior, the connecting channels of the Great Lakes in the Detroit River, St. Clair River, St. Marys River, and the Straits of Mackinac will require deepening and improvement; and

"Whereas the deepening of Great Lakes shipping channels is timely and necessary to permit full utilization of the many large freight carriers which have been placed in service on the Great Lakes in recent years, representing an investment of several hundred million dollars, and which vessels now cannot operate at full capacity due to limitations of depth in connecting channels; and

"Whereas deepening the connecting channels of the Great Lakes will add to the efficiency of lake and ocean shipping and will bring great economic benefit to the commerce of the Great Lakes, the Middle West, and of the entire Nation; and

"Whereas such improvement would be consistent with a worldwide trend toward deep-draft shipping and would be consistent with Federal projects for the deepening of seaboard harbors at many localities; and

"Whereas authorizing and appropriating legislation for this purpose should be given high priority so that the improvement of Great Lakes connecting channels may be completed to coincide with the completion o the St. Lawrence seaway project: Now, therefore, be it

"*Resolved by the Senate, the Assembly Concurring*, That the legislature of the State of Wisconsin hereby memorializes the Congress of the United States for the early enactment of legislation to authorize the deepening of the Great Lakes connecting channels and to appropriate funds for that purpose; and be it further

"*Resolved*, That the Senators and Representatives from Wisconsin be requested to use their best efforts to secure the passage of such authorizing and appropriating legislation by the 84th Congress; and be it further

"*Resolved*, That properly attested copies of this resolution be transmitted to President Eisenhower; to the Chief of Engineers, United States Army; to each House of Congress; and to each Wisconsin Member thereof."

RESOLUTION

Councilman Weinkauf moved the adoption of the following resolution:

"*Resolved*, That the city clerk inform Senator Potter, Senator McNamara, and Congressman Knox that the municipal council of the city of Alpena respectfully urges Congress to adopt legislation authorizing the deepening and improving of the connecting channels of the Great Lakes."

Councilman Linke seconded the adoption of the above resolution and it was carried by unanimous vote.

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CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
*Washington, D. C., July 5, 1955.*

Hon. CHARLES A. BUCKLEY,
*Chairman, Committee on Public Works,*
*New House Office Building, Washington, D. C.*

DEAR COLLEAGUE: In accordance with a telephone conversation with the office of the Committee on Public Works, I am enclosing a set of resolutions for inclusion in the hearings relative to the connecting channels of the Great Lakes.

These resolutions were adopted by cities on the Great Lakes and emphasize the importance of the connecting channels to these cities on the upper lakes.

With kind personal regards.

Sincerely,

GERALD R. FORD, Jr., M. C.

RESOLUTION BY ALDERMAN TOXOPEUS

Whereas at the last regular session of the Congress of the United States, enabling legislation was adopted for the joint participation by the United States with the Dominion of Canada in the construction of the so-called St. Lawrence seaway, which will provide navigable depths of 27 feet of water from the Atlantic Ocean as far west as Toledo, Ohio; and

Whereas the economic benefits of the St. Lawrence seaway project would be seriously curtailed and impaired if the connecting channels of the Great Lakes are not correspondingly deepened and improved; and

Whereas the United States Corps of Engineers, at the request of the Congress of the United States, have made a thorough and comprehensive investigation of the initial cost and annual maintenance and the potential transportation savings to be realized by the deepening and improving of the Great Lakes connecting channels and have found the project economically justified: Now, therefore, be it

*Resolved*, That the Grand Haven City Council go on record as favoring the immediate adoption by the Congress of the United States of the necessary legislation to give effect to the recommendations of the United States Corps of Engineers

for the deepening and improving of the Great Lakes connecting channels and that a copy of this resolution be sent to Senator McNamara and Representative Ford.

Alderman Toxopeus moved the adoption of the resolution, which motion carried.

Yeas: Breitels, Singerling, Toxopeus, and President Pro tempore Ledinsky.

Nays: None.

I hereby certify that this is a true and correct copy of a resolution passed by the Grand Haven City Council at a meeting held on January 17, 1955.

[SEAL] J. NYHOF POEL, *City Clerk.*

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PENTWATER CHAMBER OF COMMERCE,
*Pentwater, Mich., January 28, 1955.*

Mr. CLAUDE VER DUIN,
*Executive Secretary, Great Lakes Harbors Association,*
*Grand Haven, Mich.*

DEAR MR. VER DUIN: The following resolution was adopted by the Pentwater Chamber of Commerce at its regular meeting on January 17, 1955:

"Whereas the Corps of Engineers, United States Army, have filed their report on the cost of the proposed deepening and improving of the connecting channels of the Great Lakes; and

"Whereas bills authorizing the project and necessary appropriation thereto have, or will be, introduced in the House and Senate; and

"Whereas the completion of this project is necessary to permit large vessels to reach all ports of the Great Lakes; and

"Whereas the completion of this project is essential to the economic welfare of all ports on the Great Lakes: Therefore be it

"*Resolved by the Pentwater Chamber of Commerce,* That we urge our Senators and Congresswoman to work for the successful passage of the proposed legislation."

BRUCE E. BATES,
*Executive Secretary.*

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RESOLUTION ADOPTED BY THE COUNCIL OF THE CITY OF HOLLAND AT ITS MEETING HELD JANUARY 19, 1955

Whereas the Senate and House of Representatives of the United States of America in Congress assembled have enacted legislation providing for the construction of the St. Lawrence seaway, the same being Public Act 358, 83d Congress; and the Dominion of Canada has adopted similar and concurrent legislation, thereby assuring the construction of a 27-foot navigable channel from the head of Lake Erie to the mouth of the St. Lawrence River; and

Whereas the United States Army Engineers have reported on the feasibility and cost of completing the seaway project by deepening channels in the Detroit, St. Clair, and St. Marys Rivers and Lake St. Clair to a similar depth of 27 feet, at a total cost of not to exceed $109,500,000; and

Whereas deepening of the aforesaid channels is essential not only to provide continuous waterborne navigation from upper Great Lakes ports to foreign and intercoastal ports, but also to our own domestic commerce in the transportation of iron ore, limestone, grain, coal, and petroleum, both crude and the products thereof, because of the larger and faster vessels now engaged jn such trade and in the process of construction: Now, therefore, be it

*Resolved,* That the council of the city of Holland hereby petitions the United States Senate and House of Representatives to enact appropriate legislation for the completion of the seaway project as above set forth so that a full use of the St. Lawrence seaway may be made as soon as possible, and that a copy of this resolution be sent to Senator Potter, Senator McNamara, and Representative Ford.

HARRY HARRINGTON, *Mayor.*
C. GREVENGOED, *Clerk.*

Dated January 19, 1955.

RESOLUTION FOR THE CITY COUNCIL

Whereas the long-anticipated and hoped for St. Lawrence seaway is now to be a reality; and

Whereas present plans and schedules are such that the benefit of this project will accrue to a small area in comparison to the area that could be served; and

Whereas bills have been passed to be introduced to Congress which would authorize deepening and improving of the connecting channels of the Great Lakes so as to extend the St. Lawrence seaway to serve the Great Lakes area: Be it therefore

*Resolved*, That the city of Cheboygan strongly and wholeheartedly endorses legislation in favor of the deepening and improving of the connecting channels of the Great Lakes so as to extend the St. Lawrence seaway into the Great Lakes area and make available to the Great Lakes area the benefits derived from the St. Lawrence seaway.

CHARLES LA HAIE, *Mayor.*
OSCAR E. ANDERSON, *City Clerk.*

The above resolution was passed at a regular meeting of the city council of Cheboygan, Mich., Tuesday, January 18, 1955.

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Whereas the Detroit River, Lake St. Clair, the St. Marys River, and some shoal spots in the Straits of Mackinac must be deepened in order to permit the large vessels to reach all ports of the Great Lakes when operating at maximum draft; and

Whereas unless the connecting channels are improved the large ships that will come into the lakes upon the completion of the St. Lawrence seaway will not be able to move into the port of Escanaba; and

Whereas the future development of Escanaba and its adjacent areas will be advanced by the construction of the St. Lawrence seaway: Now, therefore, be it

*Resolved*, That the council of the city of Escanaba, Mich., endorse the authorization and the necessary appropriation for the deepening and the improving of the connecting channes of the Great Lakes; and

*Resolved further*, That this council herewith urges the support of the United States Senators from our State, Charles Potter and Patrick McNamara, and the Congressman from our district, Victor Knox, on this seaway project; and

*Resolved further*, That a copy of this resolution be forwarded to United States Senators Potter and McNamara and to Congressman Knox.

I, George M. Harvey, clerk of the city of Escanaba, Mich., do hereby certify that the above and foregoing is a true and correct copy of a resolution adopted by the council of said city at a meeting held on January 20, 1955.

GEORGE M. HARVEY, *City clerk.*

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RESOLUTION OF CITY OF ST. IGNACE, MICH.

Whereas the long-anticipated and hoped for St. Lawrence seaway is now to be a reality; and

Whereas present plans and schedules are such that the benefit of this project will accrue to a small area in comparison to the area that could be served; and

Whereas bills have been passed to be introduced to Congress which would authorize deepening and improving of the connecting channels of the Great Lakes so as to extend the St. Lawrence seaway to serve the Great Lakes area; be it therefore

*Resolved*, That the city of St. Ignace strongly and wholeheartedly endorses legislation in favor of the deepening and improving of the connecting channels of the Great Lakes so as to extend the St. Lawrence seaway into the Great Lakes area and make available to the Great Lakes area the benefits derived from the St. Lawrence seaway.

JOHN D. DONNELLY, *Mayor.*
VIRGINIA M. OLMSTEAD, *City Clerk.*

The above resolution was passed at a regular meeting of the city council of St. Ignace, Mich., Monday, February 21, 1955.

RESOLUTION No. 2616

(By Councilman Service)

Whereas this council deems the proposed improvement of the connecting channels of the Great Lakes to be a project which will be of great economic value to all communities of the States bordering the Great Lakes and in turn to the entire midwestern section of our country: Now, therefore, be it

*Resolved*, That this body does hereby endorse the aforementioned improvement and all legislation necessary for its complete fulfillment.

Adopted by the Council of the City of Harbor Springs on February 21, 1955.

R. I. HILDERBRANT, *City Clerk*.

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RESOLUTION

Whereas the United States Army Corps of Engineers has filed its report on the cost of the proposed deepening and improving of the connecting channels of the Great Lakes, with particular reference to the Detroit River, Lake St. Clair, the St. Marys River, and some shoal spots in the Straits of Mackinac; and

Whereas the completion of said channel deepening and improvement project will permit large ships to enter the Great Lakes ports upon the completion of the St. Lawrence seaway when operating at maximum draft; and

Whereas said channel deepening and improvement project will be beneficial to the city of Racine and to all of the other Great Lake port cities, as well as the neighboring communities: Be it

*Resolved*, That the mayor and the common council of the city of Racine do hereby urge Senators Alexander Wiley and Joseph R. McCarthy and Congressman Lawrence H. Smith to support any legislation the purpose of which is to institute and complete the above-referred-to channel deepening and improving projects; be it further

*Resolved*, That the city clerk be and hereby is authorized and directed to transmit certified copies of this resolution to the above-referred-to congressional representatives forthwith. ×

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CITY OF ECORSE,

*County of Wayne, State of Michigan:*

At a regular meeting of the City Council of the City of Ecorse held in the city council rooms in the Municipal Building at the corner of Cicotte and High Streets in said city on the 11th day of January A. D. 1955, at 7:30 p. m., Mayor Pro Tem Francis A. Labadie presiding.

Present: Councilmen Goodell, Hickey, Korn, Labadie, and Neal.

Absent: Councilman Buday.

Moved by Councilman Hickey, supported by Councilman Goodell

"Whereas the city of Ecorse, being a port city, is interested in the development of the St. Lawrence seaway, which will affect the rivers and lakes in this area; and

"Whereas the deepening of the channels in this area is a necessary improvement to provide for the admission of large vessels that will come into the lakes from the seaway: Now, therefore, be it

"*Resolved*, That the City Council of the City of Ecorse hereby endorse the connecting channels project and urge that our representatives in the Senate and House of Representatives in Washington take an active part in pushing the necessary legislation through to a successful conclusion; be it further

"*Resolved*, That copies of this resolution be forwarded to United States Senators Charles E. Potter and Patrick V. McNamara and United States Representative John Lesinski."

Yeas: Councilman Goodell, Hickey, Korn, Labadie, and Neal.

Nays: None.

Absent: Councilman Buday.

I, Patrick B. Trondle, clerk of the city of Ecorse, Wayne County, Mich., do hereby certify that the above and foregoing is a full, true, and complete copy of a resolution passed by the City Council of the city of Ecorse at a regular meeting held in the city council rooms in the Municipal Building at the corner of Cicotte and High Streets in said city on the 11th day of January A. D. 1955.

[SEAL] PATRICK B. TRONDLE, *City Clerk*.

Dated: Ecorse, Mich., January 12, 1955.

A Resolution as Passed by the Common Council of the Village of L'Anse, Mich., at Its Regular Meeting of January 10, 1955

Whereas the Corps of Engineers, United States Army, having filed their report on the cost of the proposed deepening and improving of the connecting channels of the Great Lakes;

Whereas bills to authorize this project and to secure the necessary appropriation will be introduced in both the House and Senate in Washington, D. C.;

Whereas, unless the connecting channels are improved, the large ships that will come into the lakes upon the completion of the St. Lawrence seaway will not be able to move west of Toledo at full draft; Therefore

We respectfully request that you do everything possible to obtain the passage of this legislation in the next session of Congress; and that

A copy of this resolution be mailed to Senators McNamara and Potter, Representative John Bennett, and the Great Lakes Harbors Association.

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Certified Copy of Resolution of Village of Ontonagon Board of Trustees

A a regular meeting of the Village of Ontonagon Board of Trustees held in the Memorial Building in the village of Ontonagon on the 10th day of January 1955, the following resolution was moved by Trustee Clyde Penegor and seconded by Trustee John Dobbek and unanimously approved:

"Whereas the board of Trustees of the Village of Ontonagon here assembled is duly advised that the Federal Government has approved of the construction of the so-called St. Lawrence seaway in cooperation with the Canadian Government in order to permit world trade operations on the Great Lakes; and

"Whereas the board of trustees is here advised that unless the connecting channels between the various Great Lakes are improved on or before the completion of the St. Lawrence seaway, that traffic through the seaway will not be able to move west of Toledo, Ohio, at full draft; and

"Whereas the village of Ontonagon is located on the southerly shore of Lake Superior and is vitally interested in the completion of the St. Lawrence seaway and the connecting channels between the Great Lakes: Now, therefore, be it

"*Resolved*, That the village of Ontonagon endorses the enactment of legislation and the approval of appropriations for the widening, deepening, and improving of the channels between the various Great Lakes; be it further

"*Resolved*, That a copy of this resolution be forwarded to the Honorable Patrick V. McNamara, United States Senator; Hon. Charles Potter, United States Senator; and Hon. John B. Bennett, Congressman, 12th District of Michigan, with the request that they support and advocate legislation accomplishing the purposes herein set forth; be it further

"*Resolved*, That a copy of this resolution be forwarded to the Great Lakes Harbor Association with the request that said Great Lakes Harbor Association do all things necessary and possible to support such legislation."

Whereupon a rollcall vote was taken with the following results:

Ayes: Penegor, Dobbek, Wilson, Borth, and Valley.

Nayes: None.

Absent: Takala.

I, Dorothy G. Aubrey, clerk of the village of Ontonagon do hereby certify that the above and foregoing is a true copy of a resolution of the Village of Ontonagon Board of Trustees passed at their regular meeting held on the 10th day of January A. D. 1955.

Dated this 10th day of January A. D. 1955.

[SEAL] Dorothy G. Aubrey, *Clerk*.

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City of Frankfort, Mich., *January 17, 1955*.

Great Lakes Harbors Association,
*Grand Haven, Mich.*

Gentlemen: At a special meeting of the Frankfort City Council, on January 13, 1955, the following resolution was unanimously approved:

"The following resolution was introduced by Councilman Sherman Vaughan, supported by Councilman Albert Figg, and duly carried by the affirmative vote of the four council members present.

"Whereas the city of Frankfort, along with other cities having harbors on the Great Lakes, is vitally interested in the completion of the St. Lawrence seaway and in the proposed deepening and improving of the connecting channels of the Great Lakes; and

"Whereas it appears that the completion of the St. Lawrence seaway will not in itself permit the larger ships to reach all parts of the Great Lakes when operating at maximum draft, and that it will be necessary for connecting channels to be improved and deepened; and

"Whereas the Great Lakes Harbors Association has endorsed the connecting channels project along with many municipalities interested in the project, and whereas the necessary appropriation bills are to be shortly introduced in both the House and Senate of the United States; Now, therefore, be it

"*Resolved*, That the City Council of the City of Frankfort go on record as favoring said project and favoring the passage of the necessary appropriation bills to finance the same by the United States Senate and House of Representatives and that a copy of this resolution be sent to United States Senators Potter and McNamara, Representative Ruth Thompson and to the Great Lakes Harbors Association."

Your support of this project will be greatly appreciated.

Very truly yours,

CARL W. M. JOHNSON, *Clerk.*

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RESOLUTION

*Resolved, by the Council of the City of Ashland:*

Whereas the Congress of the United States has authorized participation in the construction of a deep waterway from the Great Lakes to the sea; and

Whereas the benefits which are to be derived from this waterway should accrue to all communities in the Great Lakes region including the city of Ashland on Lake Superior; and

Whereas the Detroit River, Lake St. Claire, and the St. Marys River must be deepened to permit larger vessels to reach all parts of the Great Lakes when operating at maximum draft: Now, therefore,

The Council of the City of Ashland in regular session goes on record as urging our national legislators to strongly support all bills authorizing the deepening of the above channels to the benefit of our city, our State, and our Nation.

WALTER W. SMITH.
MARJORIE J. LOCKARD.

Passed January 25, 1955. Approved January 26, 1955.

HARRY P. VAN GUILDER,
*Council President.*

Attest: WILLIAM FENNESSEY,
*City Clerk.*

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RESOLUTION FROM THE MAYOR AND CITY COUNCIL, MENOMINEE, MICH.

Whereas the Corps of Engineers, United States Army, have filed their report on the cost of the proposed dredging and improving of the connecting channels of the Great Lakes, and it is estimated that this project will cost $109 million, and it is also estimated that it will take at least 4 years to complete the project, once it is undertaken; and

Whereas bills to authorize the project and to secure the necessary appropriation will be introduced in both the House and Senate in Washington, D. C., within the next week or 10 days; and

Whereas it will be necessary for all of the Lake port cities and other interested parties to get behind this legislation immediately. The Detroit River, the St. Marys River, and some shoal spots in the Straits of Mackinac must be deepened in order to permit large vessels to reach all parts of the Great Lakes and operate at a maximum draft. The Great Lakes Harbor Association, through its counsel, Mr. Herbert Naujoks, has filed a brief with the United States Engineers, endorsing the connecting channels project, and copies of this endorsement are being sent to all Members of Congress: Now, therefore,

The Menominee City Council does hereby go on record as endorsing the connecting channels project, and further respectfully recommends to the Congress of the United States that the above-mentioned legislation be passed; be it further

*Resolved*, That our Senators and Congressman be assured that at all times they will have the complete cooperation of this council as well as of all the citizens of this community in their efforts to secure the passage of this legislation;

*Resolved further*, That a copy of this resolution be mailed to Senator Charles Potter, Senator Patrick B. McNamara, Congressman Victor A. Knox, and Mayor Claude VerDuin, Grand Haven, Mich.

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RESOLUTION PASSED AT A REGULAR MEETING OF THE CITY COMMISSION OF THE CITY OF LUDINGTON, MICH., HELD AT THE MUNICIPAL BUILDING ON MONDAY, THE 21ST DAY OF FEBRUARY, A. D. 1955

Present: A quorum of said board.

"Whereas the Corps of Engineers, United States Army, has filed a report on the cost of the proposed deepening and improving of the connecting channels of the Great Lakes; and

"Whereas in the opinion of this commission the Detroit River, Lake St. Clair, St. Marys River, and some shoal spots in the Straits of Mackinac must be deepened in order to permit large oceangoing vessels to reach all parts of the Great Lakes when operating at maximum draft: Now, therefore, be it

"*Resolved*, as follows:

"1. The city of Ludington, Mason County, Mich., through its board of city commissioners does hereby endorse and recommend the passage of the connecting channels legislation now pending or about to be introduced in the House and Senate of the United States Congress, and does hereby urge the improvement of connecting channels in the Detroit River, Lake St. Clair, St. Marys River, and certain shoal spots in the Straits of Mackinac for the deepening thereof in order to permit large seagoing vessels to reach all parts of the Great Lakes when operating at maximum draft.

"2. It is further resolved that certified copies of this resolution be mailed to the Honorable Charles W. Potter, Patrick V. McNamara, United States Senators, the Honorable Ruth Thompson, Representative in Congress, and Claude Ver Duin, executive secretary, Great Lakes Harbors Association, 406 Howard Street, Grand Haven, Mich."

Moved by Mr. Copeyon and supported by Mr. Nelson that the foregoing resolution be adopted.

Ayes: 8. Nays: 0. Motion carried.

STATE OF MICHIGAN,
*County of Mason, ss:*

I, the undersigned clerk of the city of Ludington hereby certify that the foregoing is a true and correct copy, and the whole thereof, of a resolution enacted by the City Commission of the City of Ludington on Monday, the 21st day of February, A. D. 1955.

In witness whereof I have hereunto set my hand and the seal of said city this 28th day of February, A. D. 1955.

[SEAL] CLARENCE FONNSBECK, *City Clerk.*

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CHAMBER OF COMMERCE,
*Frankfort, Mich., January 31, 1955.*

GREAT LAKES HARBORS ASSOCIATION,
*406 Howard Street, Grand Haven, Mich.*

GENTLEMEN: Whereas the Frankfort Chamber of Commerce, along with other cities having harbors on the Great Lakes, is vitally interested in the completion of the St. Lawrence seaway and in the proposed deepening and improving of the connecting channels to be improved and deepened; and

Whereas it appears that the completion of the St. Lawrence seaway will not in itself permit the larger ships to reach all parts of the Great Lakes when operating at maximum draft, and that it will be necessary for connecting channels to be improved and deepened; and

Whereas the Great Lakes Harbors Association has endorsed the connecting channels project along with many municipalities interested in the project, and whereas the necessary appropriation bills are to be shortly introduced in both the House and Senate of the United States: Now, therefore, be it

*Resolved*, That the Frankfort Chamber of Commerce go on record as favoring said project and favoring the passage of the necessary appropriation bills to

finance the same by the United States Senate and House of Representatives and that a copy of this resolution be sent to United States Senators Potter and McNamara, Representative Ruth Thompson, and to the Great Lakes Harbors Association.

Very truly yours,

ROBERT A. FRYE,
*Secretary-Treasurer.*

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RESOLUTION INTRODUCED BY THE CITY COUNCIL OF THE CITY OF SUPERIOR, WIS., AUTHORIZING AND DIRECTING THE CITY CLERK TO FORWARD THIS RESOLUTION TO THE CONGRESSIONAL REPRESENTATIVES URGING THE ENDORSEMENT OF A PROPOSED BILL FOR THE DEEPENING AND IMPROVING OF THE CONNECTING CHANNELS OF THE GREAT LAKES

Whereas the Corps of Engineers of the United States Army have filed their report on the cost of the proposed deepening and improving of the connecting channels of the Great Lakes; and

Whereas the United States Congress will, very shortly, consider the necessary appropriation for such deepening and improving of said connecting channels; and

Whereas the Great Lakes Harbor Association has, through its legal counsel, filed a brief with the United States engineers endorsing the connecting channels project; and

Whereas it is extremely necessary that this project commence at the earliest possible time in order that large ships entering the Great Lakes will be able move west of Toledo at full draft upon completion of the St. Lawrence seaway: Now, therefore, be it

*Resolved by the City Council of the City of Superior in regularly assembled meeting,* That this council go on record as endorsing and strongly urging the adoption of the report submitted by the Corps of Engineers of the United States Army; and be it further

*Resolved,* That the city clerk be and he hereby is instructed to forward a copy of this resolution to the Wisconsin Representatives in Congress and to the Great Lakes Harbor Association.

Passed and adopted this 18th day of January 1955.

Approved this 19th day of January 1955.

Attest:

SCOTT G. WILLIAMSON,
*President of the Council.*
R. E. MCKEAGUE,
*City Clerk.*

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OFFICE OF THE VILLAGE CLERK,
*Saugatuck, Mich., February 8, 1955.*

CLAUDE VER DUIN,
*Executive Secretary, Great Lakes Harbors Association,*
*Grand Haven, Mich.*

DEAR MR. VER DUIN: The accompanying resolution was adopted last night, and copies of it have been mailed to the Senators from Michigan and to the Representative from this district (Senator Charles E. Potter, Senator Patrick McNamara, Representative Clare Hoffman).

"Whereas the St. Lawrence seaway is now under construction and will be ready for larger ships by 1959; and

"Whereas the Corps of Engineers, United States Army, has recommended substantial improvements to the connecting channels of the Great Lakes so that large vessels can move to all parts of the lakes; and

"Whereas the channel improvement program will require 4 years for completion and should be undertaken simultaneously with the seaway project; and

"Whereas legislation has been introduced in Congress to provide for this important channel project: Now, therefore, be it

"*Resolved by the Village Council of the Village of Saugatuck, at a meeting held on February 7, 1955,* That the members endorse the project to improve the connecting channels of the Great Lakes and urge their Representatives in Congress to support the necessary legislation to accomplish this end."

Yours truly,

A. O. BAINBRIDGE, *Clerk*

CITY OF MARINE CITY,
OFFICE OF THE CITY MANAGER,
*Marine City, Mich., January 24, 1955.*

GREAT LAKES HARBORS ASSOCIATION,
*406 Howard St., Grand Haven, Mich.*

GENTLEMEN: For the benefit of your records, I wish to advise that at its meeting January 20, 1955, the City Commission of the City of Marine City adopted the following resolution:

"RESOLUTION OFFERED BY COMMISSIONER JONES, SUPPORTED BY COMMISSIONER STOCKWELL

"Whereas the Corps of Engineers, United States Army, have filed their report on the cost of the proposed deepening and improving of the connecting channels of the Great Lakes; and

"Whereas it is estimated that this project will cost $109 million and take at least 4 years to complete with the entire cost to be borne by the Federal Government; and

"Whereas the city of Marine City feels that such deepening and improving will result in an increased amount of shipping on the waters of the Great Lakes and connecting waterways with ultimate benefit to the States, cities, and villages, who border on these waterways: Now, therefore, be it

*Resolved*, That this city commission does herewith and hereby most sincerely endorse the report of the Corps of Engineers, United States Army, and do most respectfully request favorable consideration on behalf of our Senators and Congressman.

"Unanimously adopted."

Copies of this resolution have been sent to Senators Patrick McNamara and Charles M. Potter and Representative Jesse P. Wolcott.

Very truly yours,

PAUL D. FOXWORTHY, *City Manager.*

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WYANDOTTE, MICH., *June 28, 1955.*

RESOLUTION BY COUNCILMAN JOHN E. MCCAULEY

*Resolved by the City Council of the City of Wyandotte:*

This council having been informed (by the Great Lakes Harbors Association) that bills authorizing improvements to the connecting channels of the Great Lakes have been introduced in both the Senate and the House of Representatives in Washington, D . C.; and

Whereas it is of the utmost importance to the people of the State of Michigan that these improvements be constructed so that the State may participate in the benefits which will accrue upon the completion of the seaway: Now, therefore,

The Members of the House of Representatives and Senators Potter and McNamara from the State of Michigan be and hereby are petitioned to exert their best efforts in behalf of this legislation and the appropriation of the necessary funds for the completion of the work; and be it

*Resolved* further that a copy of this resolution be transmitted to Senators Potter and McNamara and to all Members of the United States House of Representatives from the State of Michigan.

I move the adoption of the foregoing resolution.

Councilman JOHN E. MCCAULEY.

Supported by Councilman Kelly.

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STATEMENT OF HON. JOHN A. BLATNIK, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MINNESOTA

The Great Lakes system is the world's largest and busiest inland waterway. It is one of the most vitally important transport arteries in the United States. In 1953, for instance, the total net waterborne commerce of the entire United States amounted to approximately 923 million tons. Of this 242,600,000 or 26 percent moved over the Great Lakes system. Thus, over one-quarter of the total waterborne commerce of America is carried on this great inland body of

water known as the Great Lakes. The importance of the Great Lakes to this Nation's security, prosperity, and general well-being goes without saying.

Welding the vast water area that is the Great Lakes into a gigantic waterway system are the Great Lakes connecting channels. The legislation before this subcommittee calls for the further deepening and improving of the channels in St. Marys River, Straits of Mackinac, St. Clair River, Lake St. Clair, and the Detroit River, to provide for increasing the controlling depths in the upbound and downbound channels, which are now 21 feet and 25 feet, respectively, to 27 feet.

These channels have been progressively deepened and improved over a number of years. There is now excellent and long standing precedent to go ahead with the deepening again as part of the regular inland waterways and harbor projects which have continually been improved and deepened these past many years. Over 100 years ago, for instance, an 11½-foot canal was built at Sault Ste. Marie, Mich. This was deepened to 12 feet and then to 16 feet. Still later the canal was deepened to 20 feet and then to 23 feet. Finally, just prior to World War II the present MacArthur locks were built to a 31-foot depth. So congressional policy on improving these channels as the demands increased has been well established.

There can be no doubt that the demands have increased to a point where once again deepening and improving of the Great Lakes channels can be justified. For instance, of the total Great Lakes tonnage, some 50 percent moved through the St. Marys River from Lake Superior into Lake Huron; and some 60 percent moved through the Detroit River and River Rouge from Lake Huron to Lake Erie. Interestingly enough the tonnage which moved through the St. Marys locks at Sault Ste. Marie from Lake Superior into Lake Huron in the past decade was one-quarter of total tonnage which went through these locks since their construction in 1855. We must also bear in mind the fact that this volume of traffic will continue to grow and that the potential commerce which will pass through these channels will grow to an estimated 37 percent increase over the present volume. I cite these statistics to emphasize how vitally important the Great Lakes connecting channels are in the movement of traffic on the Great Lakes system as a whole.

Another factor to be considered is the fact that the Great Lakes fleet has undergone a radical change due to the expanding introduction into the fleet of a new and much larger type of vessel. Any downward swing in the cycle of water level fluctuation will seriously affect the loading capacity of all the lake vessels, particularly these newer and larger ones which have gone into operation since the end of World War II and which produce the greatest shipping economies. The new vessels are up to 700 feet or more in length, with a 70-foot beam and a carrying capacity in excess of 20,000 tons. These new ships are the answer of the Great Lakes ship operators to the challenge of constantly spiraling construction and operating costs. To operate these new ships at maximum efficiency and capacity, and thus derive the utmost benefit from economy of operation, they must be fully loaded. This is particularly true of the iron ore carriers which carry the greatest volume of the traffic. It will not be possible for these new vessels to navigate the present connecting channels, with full loads, when the water level of the Great Lakes is at ordinary, or low, stages. Improvement of these channels by deepening them to a controlling depth of 27 feet both upbound and downbound is needed now so that when the water level cycle is low the improved channel depths will be adequate to accommodate the modern Great Lakes bulk carriers fully loaded.

The deepening and improving of the connecting channels as proposed is economically justified as well. The improvements will bring a 15 percent reduction in per ton transportation costs of bulk carriers and a 22 percent savings over present costs on self-unloaders. It is further estimated that the annual operating cost of the entire Great Lakes fleet, with a capacity of 178,700,000 tons, would be reduced from $176.6 million to $149.1 million. Total transportation savings over a 50-year period are estimated at $279,800,000. The total annual equivalent of transportation savings over the economic life of the project is estimated at $9,868,000. Of this amount, 77 percent, or $7,600,000, can be credited to the proposed improvement of the channels. This is equivalent to a benefit-cost ratio of 1.78 to 1—or $1.78 in benefits for every $1 of annual cost.

On the basis of increased tonnage, larger ships, and cost savings there would seem to be no question but what congressional authorization of the connecting channels project is amply justified at this time. Such authorization will mean a great deal to the people of my congressional district, in particular, and the whole great Midwest in general. But to bring the advantages and benefits of the new St. Lawrence seaway to the great agricultural and industrial region west of Lake Erie requires the improvement and deepening of the channels. When this is

done there will be created an inland waterway into America's heartland all the way from Montreal to Duluth.

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UNITED STATES SENATE,
COMMITTEE ON FOREIGN RELATIONS,
*July 1, 1955.*

Hon. JOHN A. BLATNIK,
*Chairman, House Public Works Subcommittee,*
*House Office Building, Washington 25, D. C.*

MY DEAR MR. CHAIRMAN: Because of my absence from Washington on a long-scheduled series of speaking commitments, it is unfortunately not possible for me personally to be on hand to present testimony on the subject of connecting channels legislation, which is now receiving the earnest review of your colleagues and yourself.

I would be most appreciative, therefore, if there could be incorporated in your printed transcript this message conveying my personal position in heartfelt and enthusiastic endorsement of the effort to deepen and improve the Great Lakes connecting channels.

To my way of thinking, there is so strong a need for this legislation (which I have been pleased to offer in companion version on the Senate side), that the action of the Congress should be relatively unanimous on this subject.

It may not prove to be such, because of unwillingness of some groups to realize that the future of our entire country rather than simply of the Great Lakes area is constructively involved.

Nevertheless, thinking legislators, viewing this subject with an objective approach can, I feel, come to a quick recognition of the clear fact that here is national legislation of the highest priority and of the deepest significance to the expanding population of this great country.

Suffice it to say that, as you personally are well aware, unless and until there is action to deepen and improve the channels for 27-foot deep-draft shipping, upbound and downbound, we will have only a partial Great Lakes Waterway. Thus, the noble plan wisely enacted by the 83d Congress after a 30-year fight will have sadly suffered from incompletion.

That very same 83d Congress, however, by its authorization of $116,000 for a survey of the channel problem, indicated the indispensable relationship between the channels and the rest of the seaway.

Briefly, the case for the channels can be summed up in the fact that it is essential for national defense, essential for industrial technology, essential for agricultural prosperity, essential for Canadian-United States good neighborly relations, essential to meet the ever-widening needs of this Nation.

I will not attempt to spell out all the details of this legislation, because I know that your committee has received competent oral and written testimony amply substantiating the numerous principal points. Let me, however, spell out just a few sidelights and highlights, particularly as regards the current and future status of the lake fleet.

House Document 335 (filed in 1947) was the last previous Corps of Engineers report concerned with the channels before the current report of October 1954. It did not recommend any comprehensive deepening program for the connecting channels because the composition of the Great Lakes fleet then in existence did not demand it.

But today that situation has changed considerably. New vessels of 700 feet or more in length, with a capacity of over 20,000 tons, have been introduced to the Great Lakes Waterway. It will not be possible for these new vessels to utilize their larger capacities for iron ore in navigating the connecting channels at their present controlling depths when the water levels of the lakes are at ordinary low stages.

The proposal to improve the controlling depth of the channels to 27 feet from its present depths of 21 feet upbound and 25 feet downbound thus merits quick approval. It will enable the new carriers to operate efficiently during even the period of the low water cycle of the Great Lakes Waterway. And that waterway, may I respectfully remind the subcommittee, is the greatest low-cost transportation artery of the Nation. The projects outlined in the several bills you are now considering will cause to be lowered even the exceedingly low ton-mile costs which now exist. Since 1.7 times more traffic travels the Great Lakes than travels all the other inland waterways of the country combined, any new savings realized will be a most important contribution to the economy of the Midwest and the Nation.

But the advantages of additional savings through deepening the connecting channels must not be allowed to overshadow an ominous truth. This is that if the channels are not improved soon, those fine figures for low cost ton-miles may well start climbing again. Continuation of the present ton-mile rate depends upon the most efficient usage of carriers, and because of some of the facts of life concerning the composition of the present fleet, the continued use of present vessels is becoming more and more uneconomical.

Let me refer now to certain statistics on Great Lakes vessels, and their importance to the iron ore trade. The best figures developed show that currently there are 286 cargo vessels flying the American flag in the iron ore trade. Of these, 160 are more than 45 years old, and these ancient vessels account for more than one-half of the entire yearly movement of iron ore on the lakes. This fleet is obviously drawing near the end of its useful life. The replacement of these carriers will lag until the most efficient designs can be utilized by the shipowners, and that will only be after passage of legislation enabling the improvement of the connecting channels. Since vessels must soon be built to replace the rapidly aging fleet now in operation, and since they should be able to utilize the most modern and efficient design, their future rests with the fate of these bills for improvement of the connecting channels. It is not sensible to replace the outdated vessels with more of the same type, but even that will soon have to be done if the channels are not deepened enough to permit the larger carriers to navigate them. I have dwelt on the iron ore carriers in particular, but the problem of an aging fleet is just as critical to those engaged in the movement of other cargoes. Even at the present time, many vessels now in use cannot navigate the entire length of the lakes. There are 247 cargo vessels with maximum drafts of more than 21 feet now, sailing under American registry, and 44 now operating which require a draft of 24 feet or more, although 21 feet is the controlling depth upbound for the connecting channels.

As you know, it has long been the policy of the Federal Government to keep abreast of technological changes and improvements for channels, harbors, and rivers. In several bills now before this committee, routine improvements for several of these are recommended. The deepening and improving of the connecting channels can also be considered in this light, over and above the pressing need which I have mentioned earlier. The routine need for improvement of the connecting channels has been met before by the Congress, and modern change now requires that the channels be considered favorably again.

And so I urge the approval of this legislation to insure that there will be no slackening of the passage of iron ore down the Great Lakes in these times of national uncertainty; to insure the best utilization of new construction of lake vessels; to insure the continuation of low-cost tonnage; and to preserve and strengthen the economy of the great Midwest, in its role of heartland for the Nation.

I have confidence in the judgment of your subcommittee and in your full committee.

So far as I am concerned, the key issue before us is really not "will we approve the channels," but "when" will Congress approve the deepened channels? Will we, as we should, approve them this year, prior to recess of the 1st session of the 84th Congress, or will we tarry unnecessarily until next year?

I can appreciate the pressure of other legislation before the Senate and House Public Works Committees, as well as the problem of scheduling this particular bill on the Senate and House floors. But I am firmly convinced that ample time remains for action this year, and I do indeed hope that you and your able associates will be of like opinion.

I am grateful for the opportunity of presenting these views in this form, and I leave the case with you for your fine judgment.

Sincerely yours,

ALEXANDER WILEY.

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STATEMENT OF HON. HUBERT H. HUMPHREY, A UNITED STATES SENATOR FROM THE STATE OF MINNESOTA

Mr. Chairman, I requested this opportunity to testify before your committee today to endorse and support the several bills now before you to authorize the improvement of the Great Lakes connecting channels by deepening them from their present controlling depths of 21 feet in the upbound channels, and 25 feet in the downbound channels, to a uniform depth, in both directions, of 27 feet. I had the privilege of introducing a companion bill in the Senate, S. 961.

During the past 10 years the dynamic expansion of our country's economy has brought about an astounding increase in the growth of water transportation. This was forcibly brought to my attention by a recent speech of Maj. Gen. Samuel D. Sturgis, Jr., Chief of Engineers, United States Army, before the National Rivers and Harbors Congress, here in Washington, a short time ago. Emphasizing the problems of water supply, conservation, distribution, and utilization, General Sturgis said: "A third manifestation of the Nation's increasing reliance on water resources is found in the growth of water transportation. Whereas in 1942 our waterways carried only 2 percent of the Nation's ton-mileage of freight traffic, in 1953 they carried 17 percent, and the trend is still on the rise."

Nowhere in the country are water-transportation resources so vital to the economy of a region as in our great Middle West, so aptly called the arsenal of democracy.

Divine providence endowed our region with the Great Lakes, the largest freshwater body in the world, with a total water surface area of some 95,000 square miles, 60,950 of which are in the United States. These lakes are connected with one another by the so-called connecting channels, which, as I see it, are the key to the entire Great Lakes water system as we know it today. It is by means of these channels that the 5 Great Lakes have been welded into 1 tremendous water transportation unit which has become the busiest, and cheapest transportation system in the world.

Nowhere in the world do such tremendous mass movements of heavy tonnage take place, at such amazingly low transportation cost, as on the Great Lakes system. For instance, in 1953, the total waterborne commerce of the United States was 923.5 million net tons. Some 256 million tons of this, approximately 27.7 percent was carried on the Great Lakes. Again, in 1953, the total ton-mileage of freight traffic on all the United States inland waterways was 202.4 billion ton-miles, 63 percent of this, or 127.4 billion ton-miles, was in the Great Lakes.

This great water transportation system is the hard core of the economies of 17 of the 48 States; 8 of these border on the lakes and 9 are tributary to them in whole or in part. In this area live 35 percent of the country's population; 38 percent of our farms are in this region and 36 percent of the rural farm people live here. In 1949 these farmers produced 49 percent of the total value of farm products sold in the Nation. It is also a hive of industry; 32 percent of the country's manufacturing establishments are in this area, 42 percent of our production workers live here and produced, in 1947, 44 percent of the total value added by manufacture in our Nation. Duluth-Superior, the country's second largest port is in this region as are Chicago, which is seventh, Toledo, ninth, and Detroit, tenth.

Improvement of these channels by the Federal Government has been gradual and continuous for the past 75 years, as agriculture, industry, and commerce expanded and grew by leaps and bounds, to their present controlling depths. Since the end of World War II, however, there has been gradually introduced into the Great Lakes fleet new, modern bulk carriers with carry capacities up to some 20,000 tons, which, due to their size, transport cargoes at an exceedingly low unit cost. These new ships are the answer of Great Lakes ship operators to increased ship-construction costs and constantly spiraling operating expense. To operate at top efficiency and thus derive the lowest unit transportation cost, these ships must operate fully loaded. Since 1942 the water levels of the Great Lakes have been at unusually high levels so that these ships have had no trouble navigating these channels fully loaded at the present controlling depth. However the water levels of the lakes are subject to both seasonal and cylic fluctuations due to a variety of natural causes and when the lakes recede to their lowest cyclic point, anticipated within a few years, it will not be possible for these new ships to navigate these channels fully loaded.

For each inch of immersion the carrying capacity of these new vessels is affected to the extent of 100 tons. Thus a drop of 2 feet in the water levels would decrease the carrying capacity of these ships to the extent of 2,400 tons per trip. According to the Lake Carriers Association the loss of tonnage, if water levels were at datum, would be some 3 million tons in a season. With the rate on iron ore, to Lake Erie ports, $1.60 a ton, it is easy to compute the terrific economic loss that will result in the transportation of this one commodity alone.

Ample economic justification for this improvement is contained in the current report of the Corps of Engineers. They estimate the benefits-cost ratio at $1.78 to $1, or $1.78 in benefits to every $1 of cost.

When you consider the interrelationship of the Midwest economy with that of the rest of the country there is not, in my opinion, any other single public-works

project that would extend more widespread benefits to the Nation than the improvement of these channels. Your approval of these bills to authorize this improvement through the regular procedures for projects of this nature would be practical recognition on your part of the country's increasing reliance on its water-transportation facilities. It would also show commendable foresight in anticipating the needs of the Nation's major water-transportation system—a need that could easily prove vital in the event the present cold war should turn hot, for through these channels is transported 85 percent of the iron ore consumed by the country's steel mills.

For these reasons I respectfully urge your committee to approve the legislation now before you to authorize the improvement of the Great Lakes connecting channels.

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STATEMENT OF HON. KARL E. MUNDT, A UNITED STATES SENATOR FROM THE STATE OF SOUTH DAKOTA

I want to add my endorsement and support of my colleagues to the several bills you are now considering to authorize the improvement and deepening of the Great Lakes connecting channels.

South Dakota is the site of three Missouri River dams and reservoir improvements by the Federal Government; two of the largest dams and reservoirs in the country are located at Oahe and Fort Randall. We, in South Dakota, truly realize and understand the economic benefits to the country that flow from the development and improvement of its water resources.

The Great Lakes, together with their connecting channels constitute the largest inland water-transportation artery in the world. It serves the 17-State area that makes up our great Middle West—the Heartland of North America. This is the greatest agricultural and industrial production region in the world—and while it contains but 35 percent of the country's total population it produced, in 1949, 49 percent of the total value of all farm products sold and, in 1947, 44 percent of the total value added by manufacture in the Nation.

In 1953 the Great Lakes system carried some 28 percent of the total waterborne commerce of the country and 63 percent of the total ton-mileage of freight traffic on all the inland waterways of the United States. This is convincing evidence of the major role the Great Lakes system plays in the commerce of the United States. The connecting channels are a vital and integral part of this great water transportation complex as it is through these connecting links that the 5 Great Lakes are tied together into 1 gigantic transportation system.

Some idea of the volume of the tonnage through these channels as compared to other similar waterways can be seen from the following: Total traffic through St. Marys River, that part of these channels which connects Lake Superior with Lake Huron, in 1953, was 132.9 million net tons in a navigation season of 8 months. This was 3.5 times as much as the 38.1 million net tons which passed through the Panama Canal in a 12 months period. Similarly, in the same year, 154.3 million net tons passed down the Detroit River in 8 months. This is 1.28 times the 120.6 million tons that passed through the Suez and Panama Canals, combined in the same year, in 12 months.

These channels have been continuously improved by the Federal Government over the past 75 years and their present controlling depths are 21 feet in the upbound channels and 25 feet downbound.

The constantly expanding commerce on the Great Lakes and the increasing reliance of agriculture and industry on water transportation for the movement of huge tonnages of bulk commodities has, in the past 10 years, brought into existence the new, modern bulk carrier designed to transport cargoes of this nature in tremendous quantities thus providing the lowest possible unit transportation cost. As the present Great Lakes fleet becomes obsolescent and is replaced by these newer and larger ships it is necessary that these channels be modernized, by deepening, so as to accommodate them when the water levels of the lakes, which have been at their high over this 10-year period, reach their low level, sometime within the next few years. It is, for this reason that these improvements are sought now so that when the natural, cyclic low water levels are reached these new ships will be able to operate fully loaded and at the lowest possible cost.

The Corps of Engineers completed last year a new up-to-date cost estimate on the improvement of these waterways. There is no question as to their economic

justification as the benefits-cost ratio is most favorable, viz, 1.78 to 1, or $1.78 in benefits to every $1 in cost.

With this highly favorable economic ratio there is no question in my mind that this improvement should be authorized without delay. I sincerely hope, you the members of the committee, will agree with me and act favorably on the bills now before you.

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STATEMENT OF THOMAS LUDLOW ASHLEY

Mr. Chairman, my name is Thomas Ludlow Ashley, and I represent the Ninth Ohio District, which consists primarily of the city of Toledo.

It may seem strange, in view of Toledo's geographic position, that I should introduce and support legislation calling for the deepening and the improving of the Great Lakes' connecting channels above Lake Erie.

As all of you know, Toledo is located on the westerly end of Lake Erie, about 100 miles northwest of Cleveland by water, 55 miles southwest of Detroit, Mich., and roughly 250 miles directly east of Chicago, Ill.

Among ports on the Great Lakes, Toledo ranks only behind Duluth and Chicago in total tonnage and in 1952 Toledo was 10th among all ports of the United States.

With the passage of the St. Lawrence seaway project last year, Toledo found itself in the enviable position of being the westernmost terminus of a seaway route connecting the Midwest with ports in every corner of the world. In effect, the Atlantic Ocean has moved a thousand miles inland, to the very shores of the district which I have the privilege to represent.

Bearing these considerations in mind, it may appear strange to you that I am here this morning in support of legislation which, for all practical purposes, would extend the St. Lawrence seaway to Detroit, Chicago, Milwaukee, and as far north and west as Duluth, Minn. I know that a number of my constituents find this puzzling and they have expressed their views to me in a manner which has been forthright, to say the least. My position, of course, is that the legislation which we are considering today will prove to be of long-range value, benefit and advantage to my district as well as to those districts in the States north, south, and west of the great State of Ohio. To be sure, these advantages may not be immediate. But I am convinced, as I sit here, that the long-range advantages which will accrue if this legislation is passed will far offset the short-term advantages to the Toledo area if the legislation is not passed.

I think it is well to recall that it was only 125 years ago that the Erie Canal was completed linking the Great Lakes to the Atlantic Ocean by way of the Hudson River and the port of New York. It is a matter of history that this farsighted project shifted the whole economic balance of the United States. That inland waterway grew gradually to the point it has reached today, with the Sault Ste Marie handling more business than either the Suez or the Panama Canal. Had the western terminus of the Erie Canal been at Buffalo, instead of a thousand miles to the west, there would have been no such shift in our national economic balance, nor would the city of Buffalo have become the great city that it is today.

It seems to me, gentlemen, that the St. Lawrence seaway project is only the first step in another vast undertaking which can have the same kind of dynamic effect on our national economy as the Erie Canal did 125 years ago.

If the oceangoing vessels have access not only to Lake Ontario and Lake Erie, but to Lake Huron, Lake Michigan and Lake Superior as well, a tremendous economic impetus will be given to the industrial heart of our Nation which in turn will benefit citizens from Maine to California.

The potential of the projects which will result if this legislation is passed is unlimited, for instead of merely moving the Atlantic Ocean a thousand miles inland, we will have added nearly 3,000 additional miles to our national coastline.

It was these considerations, gentlemen, which prompted me to introduce my bill, H. R. 4629, and which prompt my appearance today before your fine committee to urge favorable consideration of this measure.

STATE OF WISCONSIN

[Jt. Res. No. 56, S.]

No. 33, 1955

A JOINT RESOLUTION Memorializing Congress to enact legislation deepening the connecting channels in the Great Lakes in order to provide the full benefits of the St. Lawrence seaway project

Whereas the United States of America and the Dominion of Canada are now constructing the St. Lawrence seaway project, scheduled for completion in 1959, which will open the ports of the State of Wisconsin to deep-draft ocean navigation, with great benefits to Wisconsin port communities, to this State, and to the entire Nation; and

Whereas the St. Lawrence seaway project will bring 27-foot navigation only to Lake Erie and in order to bring the full benefits of the project to the ports on Lake Huron, Lake Michigan, and Lake Superior, the connecting channels of the Great Lakes in the Detroit River, St. Clair River, St. Marys River, and the Straits of Mackinac will require deepening and improvement; and

Whereas the deepening of Great Lakes shipping channels is timely and necessary to permit full utilization of the many large freight carriers which have been placed in service on the Great Lakes in recent years, representing an investment of several hundred million dollars, and which vessels now cannot operate at full capacity due to limitations of depth in connecting channels; and

Whereas deepening the connecting channels of the Great Lakes will add to the efficiency of lake and ocean shipping and will bring great economic benefit to the commerce of the Great Lakes, the Middle West, and of the entire Nation; and

Whereas such improvement would be consistent with a worldwide trend toward deep-draft shipping and would be consistent with Federal projects for the deepening of seaboard harbors at many localities; and

Whereas authorizing and appropriating legislation for this purpose should be given high priority so that the improvement of Great Lakes connecting channels may be completed to coincide with the completion of the St. Lawrence seaway project: Now, therefore, be it

*Resolved by the Senate, the Assembly concurring*, That the legislature of the State of Wisconsin hereby memorializes the Congress of the United States for the early enactment of legislation to authorize the deepening of the Great Lakes connecting channels and to appropriate funds for that purpose; and, be it further

*Resolved*, That the Senators and Representatives from Wisconsin be requested to use their best efforts to secure the passage of such authorizing and appropriating legislation by the 84th Congress; and, be it further

*Resolved*, That properly attested copies of this resolution be transmitted to President Eisenhower; to the Chief of Engineers, United States Army; to each House of Congress; and to each Wisconsin Member thereof.

———— ————, *President of the Senate.*
———— ————, *Chief Clerk of the Senate.*
———— ————, *Speaker of the Assembly.*
———— ————, *Chief Clerk of the Assembly.*

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CERTIFIED COPY OF RESOLUTION REGARDING FEDERAL LEGISLATION AND APPROPRIATIONS TO DEEPEN CONNECTING CHANNELS OF THE GREAT LAKES

By the Chair (at the request of Alderman Hass) File Number 54–3110

Whereas the Governments of the United States and Canada are now engaged in the construction of the St. Lawrence seaway project, which, when completed in 1959, will open the port of Milwaukee and other cities of the Great Lakes to deep draft ocean navigation, with great benefits to the economy of the entire midcontinent area and to national defense; and

Whereas the St. Lawrence seaway project will provide 27-foot navigation only to Lake Erie, and the connecting channels of the Great Lakes in the Detroit River, St. Clair River, Straits of Mackinac, and St. Marys River will require deepening in order to bring the full benefits of the St. Lawrence seaway project and deep-draft navigation to the ports of Lake Huron, Lake Michigan, and Lake Superior; and

Whereas entirely aside from the requirements of the St. Lawrence seaway project, the deepening of Great Lakes shipping channels is timely and necessary to utilize to full capacity the many large vessels which have entered service on

the Great Lakes recently, representing an investment of hundreds of millions of dollars, and which are now unable to operate at full capacity due to channel depth limitations; and

Whereas the deepening of Great Lakes connecting channels will add to the efficiency of lake and ocean shipping and will confer great economic benefits on the commerce of the Great Lakes and of the entire Middle West, and is consistent with the trend toward deep-draft shipping and the substantial deepening of seaboard harbors at many localities; and

Whereas congressional legislation for this purpose should be given high priority so that the deepening of Great Lakes connecting channels may be completed in time to coincide with the completion of the St. Lawrence seaway project: Now, therefore, be it

*Resolved by the Common Council of the City of Milwaukee, Wis.*, That this body hereby declares its vigorous support for legislation to authorize the deepening of Great Lakes connecting channels and the appropriation of funds for that purpose by the Congress; and be it further

*Resolved*, That the Senators and Representatives from Wisconsin be requested to exert their best efforts to secure the passage of such authorizing and appropriating legislation by the 84th Congress; and be it further

*Resolved*, That the Board of Harbor Commissioners and other interested city officials and departments be authorized by this common council to take all steps necessary to further the progress of connecting channels deepening legislation, and to collaborate with all other ports, associations, and interests working toward this end; and be it further

*Resolved*, That certified copies of this resolution be transmitted by the city clerk to the President of the United States; to the Senators and Members in Congress from the State of Wisconsin; to the Public Works Committee, House of Representatives; to the Commerce Committee, United States Senate; and to the Chief of Engineers, United States Army.

OFFICE OF THE CITY CLERK,
*Milwaukee, Wis., June 28, 1955.*

I hereby certify that the foregoing is a copy of a resolution adopted by the Common Council of the City of Milwaukee on February 8, 1955.

STANLEY J. WITKOWSKI, *City Clerk.*

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CITY OF ALPENA, MICH.

Councilman Weinkauf moved the adoption of the following resolution:

"*Resolved*, That the city of clerk inform Senator Potter, Senator McNamara, and Congressman Knox that the Municipal Council of the City of Alpena respectfully urges Congress to adopt legislation authorizing the deepening and improving of the connecting channels of the Great Lakes."

Councilman Linke seconded the adoption of the above resolution and it was carried by unanimous vote.

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MARINETTE, WIS.

RESOLUTION NO. —

Whereas the Congress of the United States has previously approved legislation whereby work has begun on the long-awaited St. Lawrence seaway; and

Whereas the St. Lawrence seaway is a logical development in the economic growth of our great Nation; and

Whereas unless the connecting channels of the Great Lakes are deepened and improved, the St. Lawrence seaway project is meaningless to those areas bordering on Lakes Huron, Mich., and Superior: Now, therefore, be it

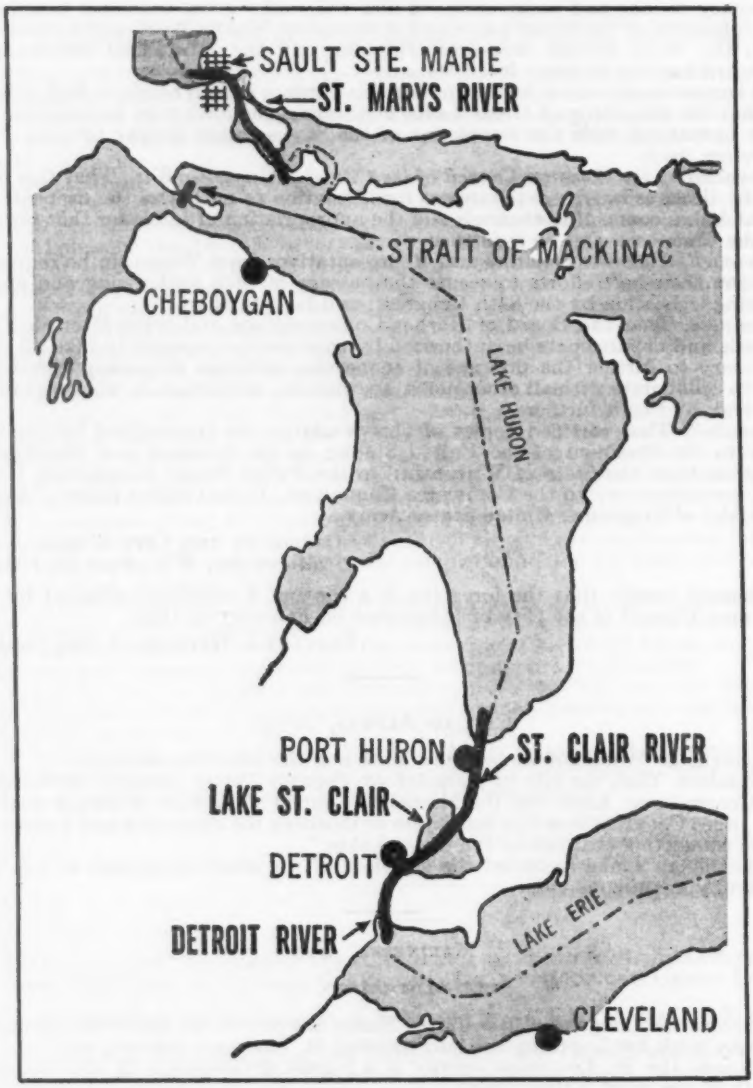
*Resolved*, That the City Council of the City of Marinette, Wis., endorses the connecting channels project and strongly urges passage in the 84th Congress of bills to authorize the project and to secure the necessary appropriation.

Adopted February —, 1955.

———— ————, *President.*
———— ————, *Councilman.*
———— ————, *City Clerk.*

THE CONNECTING CHANNELS—NEW HORIZONS FOR GREAT LAKES TRANSPORTATION

(By Great Lakes—St. Lawrence Association, Washington, D. C.)




FOREWORD

The improvement of the connecting channels of the Great Lakes system represents a problem in need of immediate solution. These channels carry 27.7 percent of all the waterborne commerce of the United States and 63 percent of all the ton-mileage carried on all the country's inland waterways. This underscores the national importance of the connecting channels. There is no State or industry which does not have direct or indirect interest in the waterways system of the Great Lakes. The necessary improvements and the benefits which would result from them are outlined in this brochure. Here the reader will find the basic facts for an evaluation of this project.

N. R. DANIELIAN,
*President, Great Lakes-St. Lawrence Association.*

### WHAT ARE THE CONNECTING CHANNELS?

The world's largest and busiest inland waterway is the Great Lakes system, serving the great Middle West. Eight States border on the lakes, and nine others are directly tributary to them. The Great Lakes have a total water-surface area of about 95,000 square miles, two-thirds of which are in the United States. This vast water area is welded into a gigantic waterway system by the connecting channels, providing a low-cost transport artery that permits the movement of materials and products of every description in huge quantities to advantageously located manufacturing areas and to the world.

At the time when the first colonies were being established on the Atlantic coastline, the entire Great Lakes region was a virgin forest; vast deposits of iron ore existed in what now are the States of Michigan, Wisconsin, and Minnesota—limestone deposits were hidden throughout the region—coal lay in the Ohio River Valley and to the northwest, and everywhere was the rich and fertile soil which has become the agricultural areas of the upper Mississippi Basin and Canada. From this land of wealth came the materials which made possible much of the industrial progress of the United States. The natural waterways system provided an economical outlet to the remainder of the country for the products of the Great Lakes region, and as a consequence this region and the Nation flourished and prospered.

Navigation on the Great Lakes began in colonial times and its development parallels the growth and development of the United States. Inauguration of navigation on the lakes was instituted by the French explorer, La Salle, in 1679 when he built a small sailing vessel of 45 tons. With the British conquest of Canada in 1763, shipping on the lakes received a great impetus and, as the tide of migration moved westward, many vessels were constructed to provide for the transportation of settlers into the wilderness and the growing commerce which accompanied this movement.

Steamboats made their first appearance in this region in September 1816 when the Canadian vessel, *Frontenac*, was launched on Lake Ontario. This was followed on the upper lakes in 1818 by the famous American vessel, *Walk-in-the-Water*. From this time on improvement and increase in the size and number of ships were natural developments.

The great westward migration during the 1830's impressed upon Congress the need for navigation charts on the Great Lakes and on March 3, 1841 an appropriation of $15,000 was made for the hydrographical survey of northern and northwestern lakes. By 1881 all of the United States waters of the Great Lakes had been charted, and surveying and charting of the lakes has been continuous since that time.

The first direct appropriation by Congress for harbor improvement on the Great Lakes was made by the act of March 3, 1823, which appropriated $150 for an examination and survey of harbor of the port of Presque Isle (Erie) Pa. This survey was made by the topographical engineers of the United States with a view to submitting an estimate of the expense for removing obstructions and the best manner of removing them. The act of May 26, 1824 appropriated $20,000 for making or deepening the channel to the harbor of Presque Isle, Pa. This was the first recognition, by the Federal Government, of its responsibility in this field and the beginning of the program of rivers and harbors improvements as we know it today.

Throughout the intervening years more and more authorizations of this kind were approved by Congress until, by 1852, Federal appropriations for river and harbor improvement and maintenance on the Great Lakes amounted to the sum of $409,500 at 28 different localities.

The heavy financial burden incident to the Civil War caused a slowing up of Federal appropriations for Great Lakes improvements. After its close, however, the rapid increase in population in the States bordering on the Great Lakes and the insistent demands for cheap transportation for passengers, package freight and the tremendous quantities of raw materials bordering on the lakes resulted in an acceleration of Federal appropriations for river and harbor improvements from the head of Lake Superior to the St. Lawrence River.

But a chain is only as strong as its weakest link, and the link which is now growing less adequate with each passing day is the system of connecting channels, which chain the lakes together into the busiest waterway system in the world. They are the three rivers, straits, and lake which connect Lake Superior with Lake Huron, Lake Huron with Lake Michigan, and Lake Huron with Lake Erie. They are: St. Marys River, Mich., Straits of Mackinac, Mich., St. Clair River, Mich., Lake St. Clair, Mich., Detroit River, Mich. The sailing distance in these

connecting waters totals approximately 174 miles. With the exception of the Straits of Mackinac, these channels constitute a part of the international boundary line between Canada and the United States. As such, they are international waters and are under the jurisdiction of the International Joint Commission, under the Boundary Waters Treaty of 1909 between Canada and the United States.

*Description and congressional history*

*St. Marys River.*—This river is the only water connection between the other Great Lakes and Lake Superior. It is 63 miles long and flows in a southeasterly direction from the eastern end of Lake Superior into the northern end of Lake Huron. At Sault Ste. Marie, there is a natural rapids where the river falls some 21 feet. This is known as St. Marys Rapids, and is three-fourths of a mile long, one-fourth mile wide, and has a velocity of water measured to 24 miles per hour. To overcome this natural barrier to through navigation of the river, 5 parallel locks, and 3 parallel canals have been constructed—4 locks and 2 canals by the United States; 1 lock and a canal by Canada. These are:

United States:

Poe Lock, constructed by the Federal Government, 1887–96. This lock is 704 feet long, 95 feet wide, and 16.6 feet deep.

Davis Lock, constructed by the Federal Government, 1908–14. This lock is 1,350 feet long, 80 feet wide, and 23.1 feet deep.

Sabin Lock, constructed by the Federal Government, 1913–19. This lock is 1,350 feet long, 80 feet wide, and 23.1 feet deep.

McArthur Lock, constructed by the Federal Government, 1942–43. This lock is 800 feet long, 80 feet wide, and 31 feet deep.

North Canal, 1¾ miles long and 23.1 feet deep.

South Canal, 1¾ miles long and 25 feet deep.

Canada:

Canadian Lock, constructed by Canada on the north side of St. Marys Rapids, 1888–95. This lock is 900 feet long, 60 feet wide, and 17 feet deep.

Canadian Canal, 1½ miles long and 17 feet deep.

In addition to the above locks and canals, 16 compensating gates have been constructed for controlling the levels of Lake Superior. To utilize the power from the rapids, a hydroelectric powerplant with an installed capacity of 18,400 kilowatts was completed in March 1954. The power generated is used to operate the locks, with the excess being consumed in the Soo area.

The first successful attempt to overcome the natural barrier in this river was by the Northwest Fur Co. In 1797–98, it built a canal on the Canadian side, providing passage for small boats and rafts. In 1814 (during the War of 1812), this canal and lock were destroyed, and for the next 40 years freight and vessels were again portaged around these rapids.

During the years 1853–55 the State of Michigan built a ship canal on the American side of the St. Marys River, known as the State canal. The locks in this canal were 350 feet long, 70 feet wide, and had a lift of about 9 feet. The State Canal provided the first through navigation route to Lake Superior, affording a channel for vessels having a draft of 11.5 feet at the mean stage of water which prevailed at that time. Between 1856 and 1869, the old passage through Lake George (at Sault Ste. Marie) was improved to 12 feet by the United States Corps of Engineers. In 1881 the Weitzel lock (replaced in 1943 by the McArthur lock), was constructed by the Federal Government. It was considered at that time to be the most modern of all lock construction. When this lock was put into operation, control of the State Canal was transferred to the Federal Government by Michigan, and at the same time the depths of channels in the river were increased to 16 feet to conform to the available depth provided by the lock. Seven years later, in 1888, the locks of the old State canal were destroyed and the present Poe lock was built in their place. When opened to commerce in 1896, it was the largest lock in the world and was designed to take in 1 lockage 4 of the largest lake vessels then in service.

The Canadian lock and Canadian Canal were built by the Canadian Government on the north side of the river during the years 1888–95. The Davis and Sabin locks, on the American side, were completed in 1914 and 1919, respectively, and are identical in size. In comparison with the Panama Canal, they are 30 feet narrower, but 350 feet longer.

Deepening and widening of the channels in the St. Marys River through shoals of sand, clay, boulders, sandstone, and rock have been in progress continuously for over 55 years, and the minimum depth below present low water datum

is now 21 feet upbound and 25 feet downbound. The narrowest upbound channel is now 500 feet wide, and the narrowest downbound channel is 300 feet wide.

The first congressional action for Federal improvement of the St. Marys River was in the Rivers and Harbors Act of July 11, 1870. This act authorized construction of the Weitzel lock and was based on an unpublished report by Maj. O. M. Poe, United States Army Corps of Engineers. Since that date, further improvement and development of this segment of the connecting channels has been authorized in 15 congressional acts relating to this river.

*Straits of Mackinac.*—The Straits of Mackinac is a natural connecting link between Lake Huron and Lake Michigan. It is about 20 miles long, and runs from east to west. The elevation of these two lakes connected by the straits above mean tide is the same. There are two routes through the straits. Vessels navigating between Lake Superior and Lake Michigan ordinarily use the northern route, passing between Round Island and Mackinac Island. Those navigating between Lake Michigan and the lower lakes use the southern route, passing to the south of Bois Blanc Island and Poe Reef. At present the northern channel between Mackinac Island and Round Island is 2,500 feet long, 1,250 feet wide, and with a controlling depth of 27 feet. The southern channel at Poe Reef is 1,500 feet wide and 27 feet deep.

Improvements by the Federal Government of these channels were first authorized by Congress September 6, 1933, as a project by the Public Works Administration (PWA). Further work was authorized in the Rivers and Harbors Act of August 30, 1935.

*St. Clair River.*—This river flows in a southerly direction, and is the connecting link between Lake Huron and Lake St. Clair. It is 40 miles in length and has a total fall of 5.2 feet in this distance. The river has two sections. The upper, or normal, channel runs from Lake Huron to the head of Chenal Ecarte, a distance of 27 miles. The lower, or delta, portion is commonly known as the St. Clair Flats. Between Lake Huron and the delta area, at the mouth of the river in Lake St. Clair, the river had natural depths of 25 feet or more with some shoal areas and protuberances. It has been improved progressively over the past 60 years to provide a channel varying in width from 700 to 1,000 feet, and a depth of 25 feet.

The first improvement by the Federal Government in this river was authorized by Congress July 13, 1892, and provided for a 20-foot channel. A further authorization on July 3, 1930, authorized deepening of the channel to 25 and 26 feet, and construction of compensating works. The channel improvement has been completed, but need for the compensating works has not yet developed and they have not been built as yet.

*Lake St. Clair.*—Lake St. Clair lies between the St. Clair and Detroit Rivers. It is about 20 miles broad at the points of connection with both rivers. Channel improvements have made it a connecting link in the through waterway from Lake Huron to Lake Erie. The Federal Government has provided in this lake a channel 7,200 feet long, 700 feet wide, and a depth of 25 feet. This channel is known as the St. Clair Flats Canal. The total length of the improved channel across the lake is about 18 miles.

The first improvement authorized by Congress for Lake St. Clair was on August 5, 1886, and covered construction of two dikes. Between August 5, 1886, and August 30, 1935, there have been six authorizations for improvements. These have authorized deepening and dredging of channels, channel widening, dike removal, and a second channel for downbound vessels.

*Detroit River.*—This river is 31 miles long, and connects Lake St. Clair with Lake Erie. It flows in a southerly direction and has a total fall of about 3 feet, most occurring in a length of about 5 miles in the lower portion of the river The Detroit varies in width from about one-half mile to 3 miles. In its original state, it was navigable throughout its entire length, but shoals at Limekiln Crossing limited the usable depth about 8 miles from the river mouth. At that point the depth was from 12.5 to 15 feet over a solid rock bottom.

First improvement by the Federal Government for the Detroit River was in the Rivers and Harbors Act of June 13, 1902, which authorized the Amherstburg Channel and the removal of Grosse Ile Shoal. Since that date there have been 13 congressional authorizations, the latest being May 17, 1950. That act authorized additional channels and provided for further widening and deepening of all channels to 21 feet upbound and 25 feet downbound. Further deepening of a portion of the upbound Amherstburg Channel to 27 feet was authorized by the Rivers and Harbors Act of 1946, but has not yet been accomplished. This deepening will permit the channel to be used both by upbound and downbound traffic if the downbound Livingstone Channel is ever blocked. It will also

increase the carrying capacity of upbound vessels using the Amherstburg Channel primarily for movement of coal.

*Cost of the channels to the Federal Government, 1881–1954*

All work done by the Corps of Engineers on the improvement of rivers and harbors is divided into two classifications: Previous projects and existing projects.[1]

The tables on the following pages show the total Federal cost from the first authorization date for each channel up to June 30, 1954, and the improvements authorized by Congress but not yet initiated, pending appropriation of funds. In table I the existing projects and previous projects are totaled as "total cost of facilities," to arrive at a conservative figure. Maintenance costs were added and the Federal cost was then arrived at showing the total Federal expenditure for each channel from inception. Table II gives the estimated cost for each improvement authorized but not started, and then shows totals for each channel. It is of interest to note that no authorized projects existed as of June 30, 1954, for either the Straits of Mackinac or Lake St. Clair.

TABLE I.—*Total Federal cost for improvements from inception to June 30, 1954*

| Channel | 1st authorization date | Previous projects | Existing projects | Total cost of facilities | Maintenance | Total Federal cost |
|---|---|---|---|---|---|---|
| St. Marys River | 1881 | $2,904,807 | $62,149,713 | $65,054,520 | $27,648,191 | $92,702,711 |
| Straits of Mackinac | 1933 | 0 | 558,465 | 558,465 | 7,831 | 566,296 |
| St. Clair River | 1892 | 0 | 3,169,348 | 3,169,348 | 1,485,255 | 4,654,603 |
| Lake St. Clair | 1886 | 656,060 | 3,536,722 | 4,192,782 | 1,291,221 | 5,484,003 |
| Detroit River | 1902 | 2,097,254 | 20,497,894 | 22,595,148 | 2,075,039 | 24,670,187 |
| Total | | 5,258,121 | 89,912,142 | 95,570,263 | 32,507,537 | 155,725,991 |

NOTE.—The cost of the Canadian canal and lock through Mar. 31, 1954, is shown below:

| | |
|---|---|
| Investment cost | $4,935,809 |
| Improvements | 659,826 |
| Cost of facilities | 5,595,635 |
| Operation and maintenance | 3,699,898 |
| Total Canadian cost, 1888–1954 | 9,295,533 |

TABLE II.—*Connecting channels improvement authorized by Congress but not initiated, pending appropriation of funds, as of June 30, 1954*

| Channel | Date authorized | Description | Estimated cost |
|---|---|---|---|
| St. Marys River | Mar. 2, 1945 | New bridge and removal of Bridge Island | [1] $3,312,000 |
| | July 24, 1946 | New Poe lock and anchorage improvements | 34,173,000 |
| | Mar. 7, 1942 | McArthur lock guard gate and approach piers | 390,000 |
| Total | | | 37,875,000 |
| St. Clair River | July 3, 1930 | Compensating works | [2] 10,600,000 |
| | Mar. 2, 1945 | Widening and deepening southeast bend and improvement of outlet (north channel). | [3] 950,000 |
| Total | | | 11,550,000 |
| Detroit River | July 24, 1946 | Improvements for Amherstburg Channel | 23,700,000 |
| | Mar. 2, 1945 | American Channel north of Belle Isle | 267,000 |
| | May 17, 1950 | Extending turning basin, Trenton Channel | 1,820,000 |
| Total | | | 25,787,000 |
| Straits of Mackinac [4] | | | |
| Lake St. Clair [4] | | | |

[1] $338,000 provided for this in civil functions bill for fiscal year 1956.
[2] Need for this has not developed, and it was put on inactive list by the Corps of Engineers.
[3] Will be eliminated if alternate plan of improvement herein described is authorized.
[4] No authorized projects for improvement of this channel as of June 30, 1954.

[1] A "previous project" has been defined by the Corps of Engineers as work done previous to the existing project which has been superseded by the existing project. An "existing project" is work or facilities now available or authorized by Congress.

*Recapitulation, total authorizations as of June 30, 1954*

| | |
|---|---|
| St. Marys River | $37,875,000 |
| St. Clair River | [1] 11,550,000 |
| Detroit River | 25,787,000 |
| Total authorizations as of June 30, 1954 | 75,212,000 |

[1] $10,600,000 of this put on inactive list by Corps of Engineers.

*Status of legislation*

Prior to the fall of 1952, the improvement of the connecting channels to a uniform depth of 27 feet upbound and downbound, was one of the elements in the overall Great Lakes-St. Lawrence River development and was included, as a non-self-liquidating section of the Great Lakes-St. Lawrence seaway project, which was to be constructed jointly by the United States and Canada under the terms of an agreement entered into between the two countries on March 19, 1941. Under the terms of this agreement the connecting channels were to be deepened at the expense of the United States to a controlling depth of 27 feet. The United States assumed this obligation to offset the cost of the Welland Canal, which Canada constructed at her own expense, at a cost of $132 million. All legislation submitted to the United States Congress between 1941 and 1952 had been predicated upon this agreement of 1941.

However, in December 1951, Canada unanimously adopted legislation authorizing construction of the St. Lawrence seaway entirely within the boundaries of Canada, if the United States did not see fit to participate. On November 4, 1952, Canada formally notified the United States that she no longer considered the 1941 agreement as binding, thus abrogating it and releasing the United States from its obligations thereunder.

With the abrogation of the 1941 agreement, a new approach to the problem of deepening the connecting channels was possible. For many years, advocates of the improvement of these channels had felt that this project should be divorced from any legislation providing for construction of the seaway. This was due to the seaway's highly controversial nature. Many interests throughout the country which were sympathetic to channel improvement and would support the project could not do so, since they had already taken a position of either neutrality or opposition to the seaway. As a result of this, and after a series of meetings had been held throughout the Midwest area, attended by representatives of agriculture, industry, and commerce, it was unanimously agreed that the improvement of these channels should be dropped from any future legislation to authorize construction of the seaway project, to be introduced when the new Congress convened in 1953. The improvement of the connecting channels would instead by sought through the regular established procedure for improvements of this nature. This procedure was adopted by Congress.

Accordingly, steps were taken immediately to secure the authorization of the Great Lakes connecting channels improvement. The cost of deepening these channels to a depth of 27 feet, according to the testimony of Maj. Gen. Bernard L. Robinson, Deputy Chief of Engineers, United States Army, on April 14, 1953, before the Public Works Committee of the House, was placed at $99,584,000, based on cost levels of December 1952. He qualified this estimate, however, by the following statement:

"These 27-foot project estimates are based on a degree of planning and hydrographic information that compares favorably with that which would ordinarily be accomplished for the preparation of a survey report, except for those areas where no previous dredging had been done. For those areas which are over and beyond the areas heretofore deepened no new soundings or borings have been taken. Subject to this limitation, the estimate presented represents the order of magnitude of the cost of the work."

Such a qualification of a cost estimate made it immediately apparent that a new survey and up-to-date cost estimates were necessary before any steps could be taken toward the authorization of this improvement by Congress. Accordingly, in the spring of 1953, by resolutions of the Senate and House Public Works Committees, a review of House Document 253, entitled "Great Lakes Connecting Waters, Principal Harbors and River Channels" and a new up-to-date cost estimate were authorized. This new survey was estimated to cost $125,000 and to take 18 months to complete. The actual cost of the survey turned out to be $116,000. The report entitled "Review of Reports on Great Lakes Connecting Channels in the Interest of Further Improvement for Navigation," was completed

by the district engineer in October 1954, and forwarded through the office of the division engineer to the Chief of Engineers, Washington, D. C. On January 20, 1955, it was reviewed and unanimously approved by the Board of Engineers for Rivers and Harbors.

Under Corps of Engineers procedures, reports of this nature must be submitted for review and comment to the governors of the affected States, as well as to the Government agencies which have an interest. The final comment was received on June 10, 1955, and on that day the report was transmitted to the Bureau of the Budget by the Secretary of the Army, for review by the Bureau to determine its relationship to the program of the President. When approved by the Bureau of the Budget, the report is to be submitted by the Secretary of the Army to the Congress.

### THE PROPOSED IMPROVEMENTS AND THEIR COST

Prior to the Corps of Engineers' report on these channels of October 1954 the last investigation and survey report filed by that office was in 1947, designated as House Document No. 335. It recommended a new Poe lock at the Soo, in the St. Marys River, together with certain isolated channel improvements, all subsequently authorized by Congress. This report did not recommend any comprehensive deepening of the overall connecting channels. The negative findings in Document 335 were predicated upon the composition of the Great Lakes fleet existing during the war years when the investigation was underway.

Since that time the Great Lakes fleet has undergone a radical change, due to the introduction into the fleet of a new and much larger type of vessel, measuring up to 700 feet in length or more and with a beam of 70 feet and a carrying capacity in excess of 20,000 tons. These new ships are the answer of the Great Lakes ship operators to the challenge of constantly spiraling construction and operating costs. To operate these new ships at maximum efficiency and capacity, they must be fully loaded. This is particularly true of the iron-ore carriers which carry the greatest volume of the traffic. It will not be possible for these new vessels to navigate the present connecting channels with full loads when the water levels of the lakes are at ordinary, or low, stages.

Water levels in the connecting channels of the Great Lakes directly affect the carrying capacity of the vessels which utilize these navigation facilities. For each variation of 1 inch in channel depth the carrying capacity of the larger vessels is affected to the amount of 100 tons. Thus a variation of 2 feet in channel depth means the carrying capacity of a vessel will be affected to the extent of 2,400 tons.

The inability to carry capacity loads and the inevitable increase in transportation costs will not only affect the operating efficiency of the vessels, as mentioned above. It will also seriously diminish the transportation of the vital iron-ore tonnage so necessary to the maintenance of our defense program.

The present inadequacy of the channels will become even more aggravated when the prevailing high-water levels recede in the next few years. Since 1942 the entire Great Lakes-St. Lawrence River Basin has been experiencing a period of unusually high lake and river water levels. The current unusually high cycle reached its zenith in 1952 and as of now at least appears to have leveled off, if not actually turned downward. Great Lakes vessel operators know that it is only a matter of a few years when the downward swing of this cycle will bring about water levels which will even more seriously affect the loading capacity of the lake vessels, particularly the new and larger vessels which have gone into operation since the end of World War II, and which produce the greatest shipping economy. Improvement of these channels, by deepening them to a controlling depth of 27 feet, both upbound and downbound, is being sought now so that by the time the water-level cycle reaches its lowest point, sometime within the next 5 to 7 years, the improved channel depths will be adequate to accommodate the modern Great Lakes bulk carriers, fully loaded, thus assuring the maximum operating efficiency, the utmost economy in transportation costs, and the largest tonnage available to meet the needs of our national defense.

*Nature of proposed improvements*

The present controlling depth of the Great Lakes connecting channels is: upbound, 21 feet; downbound, 25 feet. This permits the safe passage downbound of vessels with a draft of 22.3 feet. The improvement sought is to deepen both the upbound and downbound channels to such depths as will afford a safe operating draft for vessels of 25.4 feet. This controlling draft will permit the safe and efficient operation of the new, modern bulk carriers during the period of the ordinary, or low-water, cycle of the Great Lakes-St. Lawrence River Basin.

It will also be commensurate to the controlling draft of the St. Lawrence seaway, now under construction, and will bring the advantages and benefits of the new waterway to the entire region west of Lake Erie—the great Middle West.

*Description and cost*

The improvements proposed and recommended in the October 1954 report of the Corps of Engineers entitled, "Review of Reports on Great Lakes Connecting Channels in the Interest of Further Improvement for Navigation," and their estimated cost, are as follows:

| | | *Estimated cost (October 1954)* |
|---|---|---|
| St. Marys River: Widening channels and increasing present depths to depths ranging from 27.5 to 30 feet at 26 different locations; deepening upbound channel from present 21 feet to controlling depth of 27 feet | | [1] $40, 431, 000 |
| Straits of Mackinac: Deepen channel between Mackinac and Round Islands from 27 feet to a depth of 30 feet; deepen channel at Poe Reef from 27 to 30 feet | | 2, 231, 000 |
| St. Clair River: Improvement of existing channels, at 6 different locations, by widening to varying widths from 800 to 1,400 feet; and deepening from existing depth to depths of 27.1 to 30 feet | | [2] 18, 198, 000 |
| Lake St. Clair: Widening channels from 700 to 800 feet; deepening to 27.5 feet in St. Clair Flats Canal and lower end of lake | | 4, 158, 000 |
| Detroit River: Widening channels to widths varying from 450 to 1,200 feet; deepening them to 27.5 to 29 feet; removing shoals at 9 different locations throughout length of river; further deepening upbound channel to 27 feet | | 44, 107, 000 |
| Grand total, all connecting channels | | 109, 125, 000 |
| Less costs to be borne by— | | |
| Coast Guard | $27, 500 | |
| Non-Federal: Reconstruction submarine crossings | 70, 500 | |
| | | 98, 000 |
| Net cost of channel improvements | | 109, 027, 000 |
| Add alternate recommendation: Southeast Bend St. Clair River, recommended by district and division engineers. (See footnote 1, p. 17) | | 5, 615, 000 |
| Federal cost including alternate plan | | 114, 642, 000 |
| Supplemental recommendation by Board of Engineers for Rivers and Harbors: Improving South Canal's westerly approach to locks as St. Marys and a 1-foot increase in its depth | | 1, 300, 000 |
| Total first cost including alternate and supplemental recommendations | | 115, 942, 000 |

[1] The Board of Engineers for Rivers and Harbors further recommended improving South Canal's westerly approach to the locks at St. Marys and a 1-foot increase in depth at an additional cost of $1,300,000.
[2] Report also recommends an alternate plan for a cutoff channel, at Southeast Bend of this river, in lieu of further improvement of existing channel, at an additional estimated cost of $5,615,000.

*Bills introduced in 84th Congress*

Since the 84th Congress convened January 5, 1955, the following bills have been introduced to authorize this improvement:

Senate:
- S. 151—Senator Thye, Minnesota.
- S. 171—Senator Wiley, Wisconsin.
- S. 961—Senator Humphrey, Minnesota.
- S. 1032—Senator Potter, Michigan.
- S. 1052—Senator Langer, North Dakota.

House:
- H. R. 158—Representative O'Konski, Wisconsin.
- H. R. 462—Representative Machrowicz, Michigan.
- H. R. 660—Representative Dondero, Michigan.
- H. R. 282—Representative Reuss, Wisconsin.
- H. R. 2552—Representative Blatnik, Minnesota.
- H. R. 2589—Representative Ford, Michigan.
- H. R. 4110—Representative Vanik, Ohio.
- H. R. 4629—Representative Ashley, Ohio.

These bills are all identical.

ECONOMIC IMPORTANCE OF THE CHANNELS

The increasing reliance of the Nation on its water resources is indicated by the phenomenal increase in the country's ton-mileage of freight traffic on its inland waterways. In 1942 only 2 percent of the Nation's ton-mileage of freight traffic was carried on these waterways, but in 1953 they carried 17 percent. This is an increase of 850 percent in the short space of 11 years. The total ton-mileage of freight traffic on the United States inland waterways in 1953 was 202.4 billion. Of this, 127.4 billion, or 63 percent, was in the Grate Lakes.

The total waterborne commerce of the United States in 1953 was 923.5 million net tons. Approximately 27.7 percent, or 256 million tons, was carried in the Great Lakes. It is general knowledge that mass movements of bulk, heavy tonnage take place on the Great Lakes at unusually low transportation costs.

The nominal cost of providing and maintaining navigation improvements on the lakes, when considered in the light of the tremendous volume of traffic served, is indicated by the following figures: the total first cost to the Federal Government as of June 30, 1953, of the existing projects for the entire Great Lakes system, including connecting channels and harbors, was $205 million. Assuming a life of 50 years, interest at 2½ percent, this would give an annual amortization charge of 3.526 percent, or $7.2 million. The 1953 maintenance costs for these same facilities was $7.2 million, giving a total charge for 1953 of $14.4 million. The total traffic over this system in 1953 was 127.4 billion ton-miles. This is equivalent to a unit cost of only one one-hundredths of a cent per ton-mile. This extraordinarily low ton-mile cost compares with ton-mile costs on other major active waterways in the country, as follows: Gulf Intracoastal Waterway, seven one-hundredths of a cent per ton-mile (7 times greater); Lower Mississippi Waterway, nine one-hundredths of a cent per ton-mile (9 times greater); Ohio River Waterway, one-tenth of a cent per ton-mile (10 times greater); and Monongahela Waterway, eighteen one-hundredths of a cent per ton-mile (18 times greater).

Among the 10 leading ports of the country, including all of our coastal ports, based upon tonnage during 1953, Duluth-Superior ranked second only to New York. Chicago was 7th, Toledo, 9th, and Detroit, 10th.

In addition, the 127.4 billion ton-miles of traffic which moved over the Great Lakes in 1953 was 1.7 times more than plied over all the other of the country's inland waterways combined. The foregoing statistics dramatically portray the vital economic importance of the Great Lakes connecting channels and the Great Lakes as a transportation artery, which is being provided and maintained at a relative cost far less than comparable improvements.

*Volume and Nature of Traffic*

*St. Marys River.*—During the navigation season of approximately 240 days each year, the daily average of passages through the locks and canals in the St. Marys River numbers some 90 vessels—approximately 1 every 15 minutes. Some 70 of these are freighters which carry about 15,000 tons each—equal to 300 railway carloads. The commerce carried and the amounts of such commerce are as follows:

| Commodity | Net tons | Percent of total |
|---|---|---|
| Iron ore | 99,625,161 | 74.90 |
| Stone, sand, and gravel | 3,890,065 | 2.93 |
| Coal and coke | 9,683,419 | 7.30 |
| Grain | 15,536,007 | 10.18 |
| Petroleum products | 4,122,654 | 3.09 |
| All others | 2,124,747 | 1.60 |
| Total | 132,982,053 | 100.00 |

Of this total 122,724,301 net tons, or 92.3 percent, was commerce carried in United States-flag vessels, including exports and imports. The remaining 10,257,752 tons, 7.7 percent, being the total amount of all commerce carried in foreign-flag vessels including Canadian. There were 27,142 vessel trips (13,556 westbound and 13,586 eastbound) through this river in 1953; 90 percent of the total traffic was downbound, and 10 percent upbound.

*Straits of Mackinac.*—Principal items of traffic through the straits in 1953, and direction of their movement, were as follows:

| Commodity | Eastbound | Westbound | Total |
|---|---|---|---|
| Iron ore | 10,226,868 | 23,821,522 | 34,048,390 |
| Coal and coke | 1,141,678 | 9,888,335 | 11,030,013 |
| Limestone | 1,877,146 | 6,474,736 | 8,351,882 |
| Petroleum products | 2,533,429 | 0 | 2,533,429 |
| Grain | 380,578 | 843,882 | 1,224,460 |

*St. Clair River and Lake St. Clair.*—Traffic tonnage through the St. Clair River and Lake St. Clair is the same, as they supplement one another. Total traffic through these channels in 1953 was 129,960,566 net tons, of which approximately 19 percent was upbound, 81 percent downbound. Principal items of traffic through these channels in 1953 were:

| Commodity | Upbound | Downbound | Total |
|---|---|---|---|
| Iron ore | 64,088 | 74,459,507 | 74,523,595 |
| Coal and coke | 23,615,044 | 7,848 | 23,622,892 |
| Limestone | 28,000 | 13,169,585 | 13,197,585 |
| Petroleum products | 283,461 | 4,750,110 | 5,033,571 |
| Grain | 45,054 | 3,915,017 | 3,960,071 |

There were 20,962 vessel trips through these channels in the 1953 navigation season—10,626 upbound, 10,336 downbound, or 1 vessel every 17 minutes.

*Detroit River.*—Total traffic through the Detroit River in 1953 was 154,322,381 net tons, the largest amount through any one segment of the connecting channels. Of this total, 74 percent was downbound, 26 percent upbound. Principal commodities moving on the Detroit River in 1953 were:

| Commodity | Upbound | Downbound | Total |
|---|---|---|---|
| Iron ore | 108,250 | 74,459,507 | 74,567,757 |
| Coal and coke | 34,727,700 | 99,849 | 34,827,549 |
| Limestone | 28,000 | 12,447,343 | 12,475,343 |
| Petroleum products | 1,038,891 | 1,968,675 | 3,007,566 |
| Grain | 45,054 | 4,000,589 | 4,045,643 |

There were 30,122 vessel trips through this river in 1953—15,163 upbound, 14,959 downbound. This traffic, combined with that of the port of Windsor, Ontario, is the equivalent of a vessel passage every 5 minutes, day and night, throughout the entire navigation season.

*Economic benefits to be derived*

The following are highlights and excerpts from the October 1954 report of the Detroit District, Corps of Engineers, United States Army, entitled "Review of Reports on Great Lakes Connecting Channels in the Interest of Further Improvement for Navigation":

*Composition of the Great Lakes fleet.*—There are four types of vessels operating in the Great Lakes: bulk carriers, "self-unloaders," automobile carriers, and tankers. The bulk carriers transport ore down from Lake Superior and return loaded with coal for Lake Superior ports. The "self-unloaders" are equipped with a built-in conveyor system and can unload at docks where no unloading facilities are available. This permits wide distribution of their cargoes throughout the lakes. They transport stone and coal, stone on the downlake trip, and coal on the upbound trip. The automobile carriers operate mainly from Detroit to Cleveland, Buffalo, and Duluth. These are former ore carriers which have been converted to this special trade by installation of special racks and elevators to facilitate the handling of the cars. Some automobiles consigned to Duluth are also carried on the decks and in the holds of ore vessels returning to that port. Three special tankers 600 feet in length have been built in recent years to transport oil from Superior to Sarnia, Ontario. With the completion of the pipeline into Sarnia, two of these were converted for other purposes. Large

quantities of petroleum are carried from Indiana Harbor, near Chicago, and Toledo, to both American and Canadian ports throughout the lakes.

There are 61 vessels in the present fleet with allowable drafts of from 22.4 to 26.9 feet, whereas the present controlling draft for the connecting channels is only 22.3 feet when the levels of the lakes are at low-water datum. There are 247 cargo vessels of American registry on the Great Lakes with maximum drafts of 21 feet or more, as follows:

| *Draft* | *Number* |
|---|---|
| 21 feet 0 inches to 21 feet 11 inches | 141 |
| 22 feet 0 inches to 22 feet 11 inches | 58 |
| 23 feet 0 inches to 23 feet 11 inches | 4 |
| 24 feet 0 inches to 24 feet 11 inches | 22 |
| 25 feet 0 inches to 25 feet 11 inches | 13 |
| 26 feet 0 inches to 26 feet 11 inches | 9 |

There is a total of 286 cargo vessels of American registry engaged in the iron ore trade. Forty-eight of these are at least 50 years old and 112 are between 45 and 50 years old. Over two-thirds of the total fleet are more than 40 years old and they are depended upon for over one-half the annual movement of this ore. These vessels over 40 years old are nearing the end of their economic life. Due to their comparatively high maintenance and operating costs they are unable to compete with the modern vessels, and are usually taken out of service during seasons of slack demand for iron ore. Because of the age of many of the vessels in the present fleet and due to the large savings in transportation obtained from the new, larger faster vessels it is reasonable to assume that the replacement of the smaller, older vessels will be accelerated if deeper channels are provided. There will be little expansion of the largest classes of vessels in the fleet if the connecting channels are not deepened. Experience in the past 50 years on the Great Lakes has clearly shown that vessel interests have always taken full advantage of the connecting channels and major ports. This situation prevails with the present fleet.

The present fleet of Great Lakes ships, all registries, consists of 5 ships 650 feet and over in length with average summer drafts of 26.3 to 26.8 feet. Most of the smaller vessels are 40 years old or more and will be gradually replaced so that the Corps of Engineers has therefore predicted [2] that, with the improvement, there will by 1985 be 93 ships 650 feet and over in length having a draft of 26.3 to 26.8 feet. On the other hand the Corps of Engineers has predicted that without the improvement the present fleet of 5 ships 650 feet and over will not be expanded.

*Prospective annual commerce through connecting channels over life of project.*—The Corps of Engineers analyzed and estimated the type and predicted the volume of the commerce which would benefit by these improvements over a 50-year period. These figures are: [3]

| Commodity | Net tons | Remarks |
|---|---|---|
| Iron ore | 82,000,000 | Over next 50 to 60 years. |
| Coal | 66,000,000 | For life of project—50 percent above present rate by 1975 despite oil and gas pipelines. |
| Grain | 5,800,000 | Average for 1948–52. |
| Stone | 35,000,000 | By 1985. |
| Petroleum | 3,900,000 | Do. |
| Total | 192,700,000 | |

*Evaluation of benefits*

*Estimated savings in transportation costs.*—Assuming the improvement of the channels and taking the predicted fleet in 1985 as a basis, the Corps of Engineers

[2] Corps of Engineers Report, October 1954, p. 57.
[3] Ibid., p. 43.

has estimated there will be the following savings in unit costs of transportation of iron ore, grain, and stone: [4]

1. For bulk carriers: 15 cents per ton (present cost of $1.02 reduced to $0.87 per ton).
2. For "self-unloaders": 18 cents per ton (present cost of $0.81 reduced to $0.63 per ton).

No benefits have been estimated for coal traffic as the authorized depths of the channels between Lake Erie and Lake Huron are considered adequate to accommodate any vessel loaded with coal, with but few exceptions, during the life of the proposed project. Likewise, no benefits have been developed for petroleum commerce. This movement is generally in relatively shallow-draft tankers which would derive little, if any, benefits, from increased depths.

Applying the savings per ton (as set forth in footnote below) in unit costs of transportation to the total estimated annual tonnage over the 50-year life of the project, the total annual savings to the commerce in iron ore, grain and stone which will result from the increased channel depths are estimated by the Corps of Engineers to be as follows:

| | |
|---|---|
| Bulk carriers | $259, 724, 000 |
| "Self-unloaders" | 20, 149, 000 |
| Total savings over 50-year period | 279, 873, 000 |

Based upon these total savings of $279,873,000 over the economic life of the project of 50 years the present worth, as of 1960, of these total transportation savings is $9,868,000. This result is obtained by applying a benefit recovery factor of 0.03526 (50 years at 2½ percent compound interest) to the total savings of $279,873,000. This $9,868,000 present worth, as of 1960, is the total average annual equivalent savings over the economic life of the project.

*Estimated costs to the Federal Government.*—The costs to the Federal Government will consist of:

1. Total investment plus interest during period of construction.
2. Annual carrying charges.

These are specifically set forth in the following tables:

Federal investment:

| | |
|---|---|
| Total first cost | $109, 054, 500 |
| Interest (2½ percent during construction period, 4 years) | 5, 452, 500 |
| Total Federal investment | 114, 507, 000 |

Federal annual charges:

| | |
|---|---|
| Interest—2½ percent | 2, 862, 700 |
| Amortization (50 years at 2½ percent, 0.01026) | 1, 174, 800 |
| Annual cost additional maintenance | 202, 100 |
| Total Federal annual charges | 4, 239, 100 |
| Non-Federal charges | 2, 500 |
| Total annual charges | 4, 242, 100 |

[4] These savings in unit costs are derived from the following breakdown of unit transportation cost saving for each of the periods indicated:

| Year | Bulk carriers | "Self-unloaders" |
|---|---|---|
| 1960 | $0.036 | $0.027 |
| 1965 | .059 | .058 |
| 1975 | .104 | .120 |
| 1985 | .144 | .174 |
| 1995 | .150 | .182 |
| 2005 | .150 | .182 |
| 2010 | .150 | .182 |

In addition to the foregoing costs to the Federal Government there will be additional expenditures for increasing the depths of certain harbors. This is because, in order to realize the benefits from deepening the connecting channels it will be necessary to provide increased depths and harbor terminal facilties at certain harbors to accommodate deep draft commerce. This is estimated at $26 million for the deeper drafts for iron ore and stone traffic. Twenty-five percent more than this is estimated to be sufficient to cover the cost of improving harbor and terminal facilities, or a total of $32,500,000.

The estimated annual charge, including the increase in the cost of maintenance for the above harbor and terminal work related to the plan for deepening the connecting channels is $1,295,000. This charge of $1,295,000 for harbor modifications added to the Federal annual charges for deepening the channels of $4,242,100 results in total annual charges of $5,537,100. The Federal annual charges for deepening the connecting channels are, therefore, 77 percent of the total charges of $5,537,100.

In order to determine the portion of the total average annual transportation savings of $9,868,000 which can be properly allocated to the deepening of the connecting channels, it is necessary to apply the factor of 77 percent to the total figure of $9,868,000 which results in annual savings of approximately $7,600,000 accruing from the deepening of the channels.

*Benefit-cost ratio.*—A comparison of the estimated annual savings accruing from the deepening of the connecting channels with the estimated annual charges indicates a very favorable benefit-cost ratio. The annual savings of $7,600,000 when contrasted with the annual charges of $4,242,100 results in a ratio of 1.78 to 1. This is the equivalent of $1.78 in benefits for each $1 of cost.

*St. Lawrence seaway traffic.*—In evaluating the economic benefits from this improvement, no consideration whatsoever was given to potential increased traffic anticipated from completion of the St. Lawrence seaway now under construction. In this connection the report states (p. 93, par. 135):

"The evaluated benefits which have been developed herein as a result of the proposed improvement cover only such benefits to Great Lakes commerce and do not include any benefits which will accrue to commerce entering the Great Lakes through the St. Lawrence seaway. No detailed traffic studies were made in connection with this report either as to the volume and character of commerce or of the types of vessels which would be destined through the seaway to ports on Lakes Huron, Michigan, and Superior. However it is believed that the deeper channels proposed herein will result in substantial benefits to the large volume of deep-craft seaway traffic destined to ports on the upper lakes."

## CONCLUSION

The Great Lakes, with their connecting channels, form the most important system of inland waterways in the United States. They provide a means for the mass transportation, at low cost, of the products of our farms, mines and factories and represent a natural resource of incalculable value. The amount of Federal expenditures made over a period of 100 years, when reduced to the basis of ton-miles, is dramatic proof of the fact that this great natural waterway has received a relatively small share of the total funds devoted to the construction, maintenance and operation of all our inland waterways. The time has now come to preserve and maintain the inherent advantages of this main artery of transportation by deepening the connecting channels. It has been shown that this improvement is required because it is a technological necessity to promote the operating efficiency of Great Lakes shipping so vital to the economy of the Middle West and the Nation and because it will add an incremental element of safety in the flow of raw materials necessary for our national defense. These important reasons when coupled with the favorable benefit-cost ratio of 1.78 to 1, compel the conclusion that our national interest will be promoted and fostered by an improvement of such far-reaching effects.

STATISTICS ON THE GREAT LAKES REGION

Eight States border on the Great Lakes, viz: Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania,[5] and New York.[5]

Nine are tributary to them, viz: Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas, Montana, Wyoming, and Colorado.

These 17 States, 35 percent of the Union in number, constitute the Great Lakes region—the greatest agricultural and industrial complex in the world—the heartland of North America.

Its vital importance to the economy of the Nation is dramatically portrayed by the following comparisons between the region and the country as a whole:

| | *Percent United States total* |
|---|---|
| Population: | |
| 52,149,637 people live in the Great Lakes region | [1] 35 |
| 8,268,038 of these are rural farm people | [1] 36 |
| 4,981,886 are production workers | [2] 42 |
| Agriculture: | |
| 2,058,139 of the Nation's farms are here | [1] 38 |
| $10,914,789,000 was value of farm products sold | [3] 49 |
| Manufacturing: | |
| 78,021 manufacturing establishments are in this region | [2] 32 |
| $32,462,148,000 was the value added by manufacture | [2] 44 |

[1] 1950.
[2] 1947.
[3] 1949.

Source: 1952 County and City Data Book, U. S. Department of Commerce, Bureau of the Census. These are the latest statistics available.

(Whereupon, the meeting was adjourned.)

[5] As but a relatively small section of the States of Pennsylvania and New York, compared to the State as a whole, border on the Great Lakes, in computing these statistics just those counties in each of these States, naturally tributary to the lakes were considered. There are 8 counties in this category in Pennsylvania, 21 in New York.

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